THIRD SERIES VOL 58 NUMBER 12 OCTOBER 1951

THE JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

66 PORTLAND PLACE LONDON W1 · TWO SHILLINGS AND SIXPENCE

The George Inn, Norton St Philip, Somerset. From a pencil sketch by J. C. H. Bawcutt [A]

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THE JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

THIRD SERIES VOL 58 NUMBER 12 : OCTOBER 1951 : 66 PORTLAND PLACE LONDON W1 : TWO SHILLINGS & SIXPENCE

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The Opening of the R.I.B.A. Session

Members are reminded that the President, Mr. A. Graham Henderson, A.R.S.A., will open the Session with his Inaugural Address on Tuesday, 6 November, at 6 p.m. He will also present the London Architecture Bronze Medal for 1950 to Mr. A. J. Powell, A.A.Dipl. [*A*], and Mr. J. H. Moya, A.A.Dipl. [*A*] in respect of the Westminster City Council's Housing Scheme at Pimlico, and the R.I.B.A. Bronze Architecture Medal for New South Wales to Mr. Brian O'Rorke, A.R.A. [*F*] for the Orient Line Building, Sydney, designed in association with Messrs. Fowell, McConnell and Mansfield [*FF*].

The Building Exhibition 1951

Today we hear much of restrictions on building and limitation of capital expenditure, but to judge from the increased size of this year's Building Exhibition, the materials side of the building industry seems to be flourishing. For the first time all three halls at Olympia are being used to house a display which will cover every phase of the building and allied trades. In addition to manufacturers, all the government departments that are connected with building are showing some of the latest research findings. A special display on masonry has been arranged by Mr. Lawrence Wright [*A*].

All architects should visit the R.I.B.A. Club. This is in the usual place, over the Addison Road entrance, and approached from the gallery. A buffet is being provided to ease the occasional congestion about tea time.

An admission card will be found enclosed with this JOURNAL. Members are asked to use this card because its presentation ensures a donation of 3*s.* 6*d.* to the Architects' Benevolent Society. The tear-off slip on the card entitles the holder to tea in the R.I.B.A. Club. Both the tickets and the club-room have been generously provided by Mr. H. Greville Montgomery [*Hon. A*] and Mr. Hugh Montgomery [*Hon. A*].

Danish Honour for Mr. F. R. Yerbury

Mr. F. R. Yerbury [*Hon. A*] has been created a Knight of the Order of the Dannebrog by the King of Denmark in recognition of his work for the improvement of cultural relations between Denmark and Great Britain. His friends and acquaintances in the profession—which means practically all architects in this country and many hundreds on the Continent—will join with us in offering him congratulations.

Pupils and Junior Assistants and the Probationership of the R.I.B.A.

The Board of Architectural Education have noticed that the practice still persists of members accepting pupils or junior assistants without satisfying themselves that such pupils or junior assistants have reached the necessary standard of general education for the Probationership. Members are reminded that it is most important that they should not take boys or girls into their offices unless they possess one of the qualifications laid down. A list of the recognized examinations can be obtained on application to the Secretary, R.I.B.A.

Visitors to the R.I.B.A.

Since we published in the last JOURNAL an account of the activities of the R.I.B.A. Information Bureau, Festival visitors have continued to arrive. These included a party of 22 Dutch architects under the auspices of the Graduate Society of the Delft Technical High School. A particularly welcome visitor was Professor Eskil Sundahl, an Honorary Corresponding Member for Sweden and Chief Architect of the Swedish Co-operative Society. Professor Sundahl has acted as host to many British architects visiting Sweden and several have enjoyed periods of work in his office. One American architect being shown round the building paused before the bust of Inigo Jones and asked for information about him. On being told that the head of Jones's chief client had been cut off, the American remarked that he had had several clients whom he would gladly see suffer the same fate!

Slide Collection—Victoria and Albert Museum

The Slide Library at the Victoria and Albert Museum has now been completely reorganized, and a comprehensive catalogue issued covering the architectural sections. Architectural subjects are divided as follows: (*a*) Pre-classical, (*b*) Classical, (*c*) Post-classical, (*d*) Twentieth Century, (*e*) Index of Architects. Section (*c*) is further divided into five parts: (i) British Isles, (ii) France, (iii) Germany and Austria, (iv) Italy, (v) All other countries. Each of the sub-divisions under (*c*) also includes the relevant 20th century subjects. There are in all nearly 6,000 slides in the library, the largest sections being those which cover the subject historically. Slides are available free of charge to *bona fide* lecturers, and copies of the catalogues can be borrowed from the Circulation Department (Slides) of the Victoria and Albert Museum, S.W.7. For the convenience of Members visiting the R.I.B.A. it has been arranged for copies of the catalogues to be available also in the R.I.B.A. Library.

Summer School at Oxford

The Oxford Summer School of Architectural History and Measured Drawing, which formed a part of the City of Oxford Festival of Britain Programme, was attended by over 40 students and observers from Great Britain and overseas. The School was suggested in 1949 by T. Talfourd Cumming [*F*], President of the Berks, Bucks and Oxon Architectural Association; the Association sponsored the School and received strong support and assistance from the Southern Regional Council for Further Education.

The School was held at Magdalen College from 21 July to 4 August under the patronage of the Vice-Chancellor of the University of Oxford, the Vice-Chancellor of the University of Reading, and the Mayor of Oxford, J.R. Tolson, A.M.T.P.I.[*A*], Head of the Oxford School of Architecture and Building, was Director of Studies. A. E. Lassetter [*L*] and J. Brosgall, Secretary of the Southern Regional Council for Further Education, acted as Joint Hon. Secretaries. The promoters were fortunate to obtain the generous support and help of Magdalen College.

At the inaugural dinner in Hall at Magdalen on Saturday 21 July the Mayor of Oxford warmly welcomed the members and wished them success with their studies. The lecture programme included *One Hundred Years of Social Life* (1751-1851) by Professor A. E. Richardson, R.A. [*F*], *The Architecture of the Cotswolds* by Thomas Rayson, F.S.A. [*F*], *Oxford Houses* by W. A. Pantin, M.A., F.S.A., F.B.A., Fellow of Oriel College, *Influence of Local Materials on Design* by P. S. Spokes, M.A., B.Sc., F.S.A., *Blemheim* by David Green, *Faulty Cratfsmanship in Masonry* by R. J. Schaffer, B.A., B.Sc., of the Building Research Station, *Growth of an Oxford College* by A. H. Smith, C.B.E., M.A., Warden of New College, and *Wren in Oxford* by Martin S. Briggs, Hon. Secretary, R.I.B.A. Visits to the Cotswolds and Blenheim Palace were held.

During the fortnight a measuring and sketching programme was undertaken by the students, who worked in groups under the guidance of members of the Berks, Bucks and Oxon Architectural Association and staff members of the Oxford School of Architecture. On the last Friday all work was exhibited in Hall at Magdalen and was assessed by a jury of four members: T. Talfourd Cumming [*F*] representing Berks, A. B. Waters, M.B.E., G.M. [*F*], who gave the collective criticism, representing Bucks, H. F. Hurcombe [*F*] representing Oxon, and R. W. Cave [*A*] representing members of the School of Architecture. The jury awarded a prize for outstanding work to the group consisting of B. P. F. White of Bournemouth, R. E. Prestwich of Blackpool, and W. J. Wintle of Liverpool University, who prepared studies under the title *Form and Construction*. Miss A. Heyworth, R. D. Holland and D. McConaghy, all of Liverpool University, were highly commended for their group studies of The Queen's College.

The programme concluded with a reception on Friday afternoon given by the Mayor of Oxford in the Town Hall; dispersal took place during the morning of Saturday 4 August after a fortnight of study that is generally considered to have been an unqualified success. The Berks, Bucks and Oxon Architectural Association are to be congratulated on their enterprise and on the excellent organization of the School.

The R.I.B.A. Telephone Number

The possessors of the telephone number WELbeck 5721 which, until a few years ago, was the Royal Institute's number, have informed the Secretary, R.I.B.A., that they are 'daily put to great inconvenience in answering calls made by members of the R.I.B.A.' The Post Office changed the Royal Institute's number to LANgham 5721 on 13 August, 1949, and we have more than once drawn the attention of members to the change; the correct number is given in the Kalendar and, of course, in the telephone directory. To save themselves and a firm of dental manufacturers some delay and inconvenience will all members please make a special note that the R.I.B.A.'s telephone number is LANgham 5721?

Royal Fine Art Commission

Mr. J. M. Richards [*A*] has been appointed a member of the Royal Fine Art Commission.

Season Tickets to Ancient Monuments

The Ministry of Works have arranged for the issue of season tickets which admit holders to any or all of the 400 ancient monuments and historic buildings which are in the care of the Ministry. These cost £1 each, admit two persons, and are available for twelve months. The normal charge for a single admission is 6*d.* or 1*s.* so that if one is on a holiday tour the possession of one of these season tickets may be well worth while. The Tower of London, Hampton Court, Holyrood Palace, Harlech Castle, Audley End, Carisbrooke Castle, Osborne House, Lindisfarne Priory and Stonehenge are examples of the places included. Complete lists of places and tickets have been issued to the British Travel and Holidays Association and to 276 travel agencies. Tickets can also be obtained from the Ministry of Works (A.S.22), Lambeth Bridge House, S.E.1, or, in the case of Scotland from 122 Great George Street, Edinburgh.

Practice Arbitration

A practice arbitration, arranged by the Institute of Arbitrators and the London Master Builders' Association, will be held at the R.I.B.A. at 6 p.m. on Wednesday 7 November. Any members wishing to attend should apply for tickets to Mr. R. E. Stenning, Secretary L.M.B.A., 47 Bedford Square, London, W.C.1.

New Town Proposed at Congleton

The Minister of Local Government and Planning, Mr. Hugh Dalton, has decided to take formal steps under the New Towns Act, 1946, towards setting up a Development Corporation to build a new town at Congleton, Cheshire. The main object of the new town will be to assist in meeting the formidable overspill problem faced by local authorities in South Lancashire. In selecting Congleton consideration has been given to the problems of providing water and other services, to the avoidance of land where there is a danger of subsidence due to salt mining, and to the desirability of keeping off high-grade farm land. The Minister is now consulting all the local authorities concerned. The authorities have been sent a sketch of the site the Minister has in mind and he has told them that, subject to the outcome of his consultations, he will make a draft designation order.

Social Aspects of Town and Country Planning

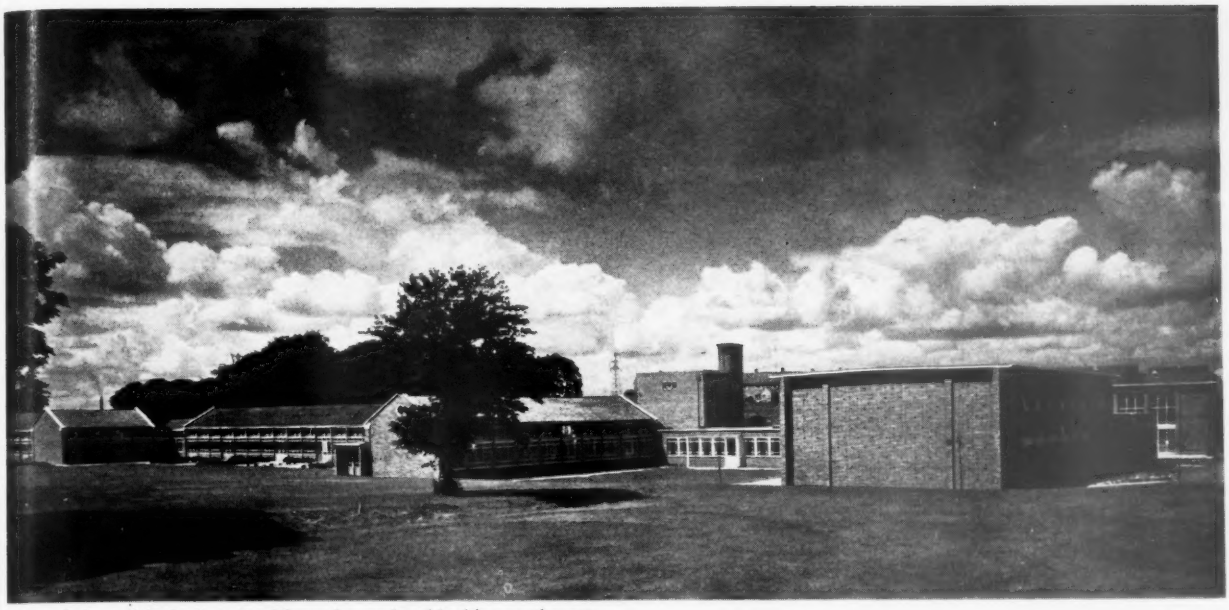
The Nuffield Foundation have recently made a Grant for the establishment of a Social Research Unit in the Town Planning Department at University College, London University. The Head of the Department is Professor W. G. Holford [*F*]; the work of the Unit will be directed by Mrs. Ruth Glass. Studies will be undertaken, initially for a period of two years, into certain social aspects of town and country planning. The address of the Social Research Unit is 98 Gower Street, W.C.1.

Exhibitions at the Scottish Building Centre

The Directors of the Scottish Building Centre in Glasgow have decided to reserve the main part of the first floor in the Centre permanently for the holding of exhibitions. The Coventry Cathedral drawings by Mr. Basil Spence [*F*] form the first exhibition to be held under the new arrangements and this will be followed by the R.I.B.A. Exhibition 'Housing Needs of Old People', under the auspices of the Glasgow Institute of Architects.

R.I.B.A. Diary

TUESDAY 6 NOVEMBER. 6 P.M. General Meeting. The President's Inaugural Address. Presentation of London Architecture Bronze Medal and New South Wales Architecture Bronze Medal.



General view of the junior school from the road and looking north-west

School Group at Leagrave, Bedfordshire

For the Luton Borough Council

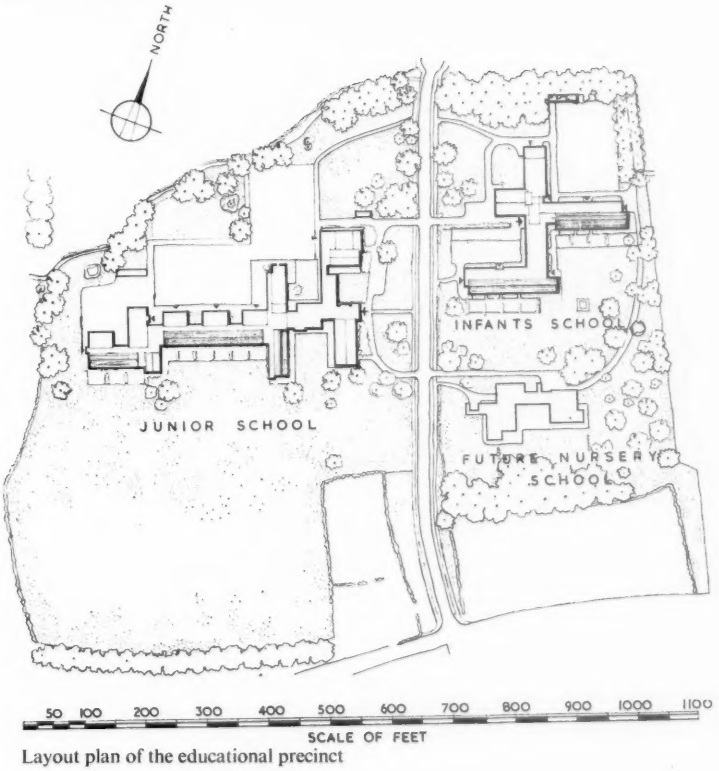
Architects: Howard V. Lobb and Partners [*F*/*A*]

THIS GROUP OF SCHOOLS is situated in the valley of the River Lea between the High Street of Leagrave and a new housing estate. The 16-acre site has been laid out as a whole to contain three schools, of which a primary and an infants' school have been built and a nursery school is to be built in the future. The site is bisected by a new link road which runs from the village to the housing estate. On the 10½-acre portion is the junior school with its playing fields, and the 5½-acre portion accommodates the two other schools.

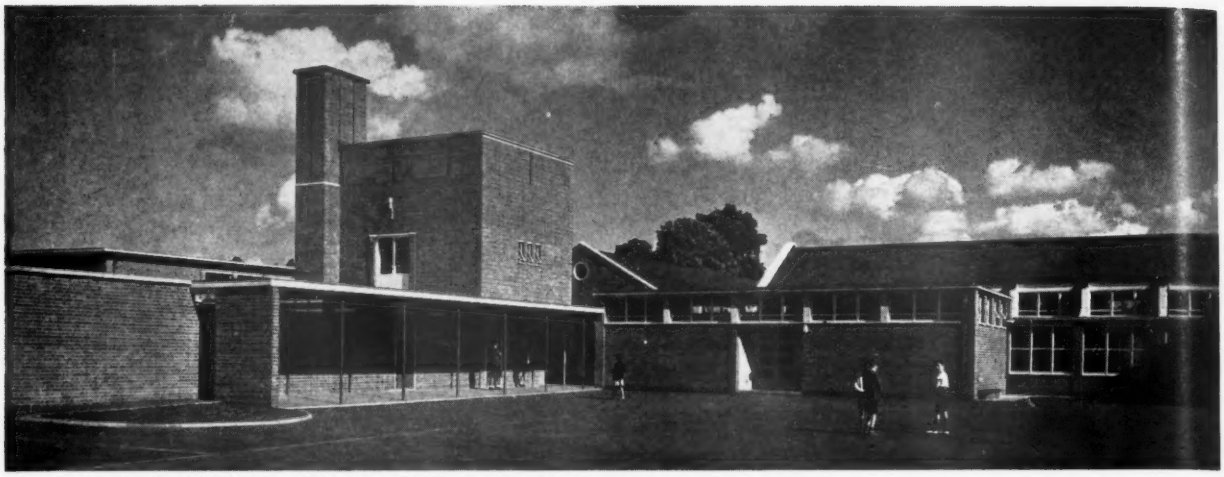
The schools accord with the general austerity standards of today but they have several features of interest. The plans are compact; for example, in the infants' school, the cloaks and wash rooms are planned as semi-open spaces along the corridors. This is shown in the bottom right-hand photograph on page 455 and on the plans. The various wings also are short, so that the ratio of circulation space to usable space is unusually low.

The classroom blocks mostly face east of south, which, together with the provision of projecting eaves and window fins, ensures that high angle and hot afternoon sun will be cut off from the interiors. Venetian blinds are also provided at the windows as shown in the large photograph on page 454. The classrooms accord with normal practice, though the clerestory lights over the corridor heads slope slightly

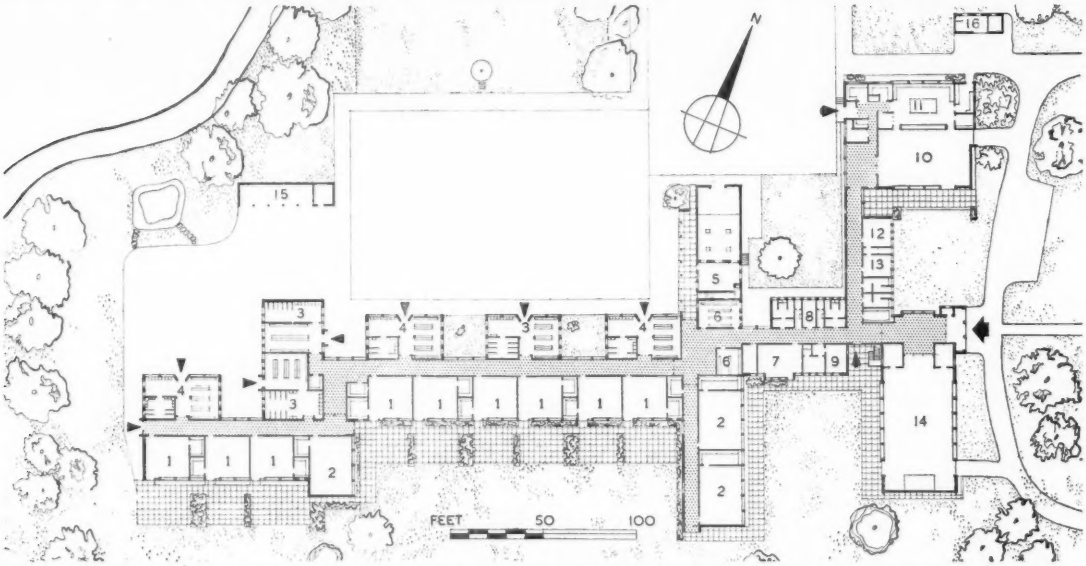
(*continued on page* 453)



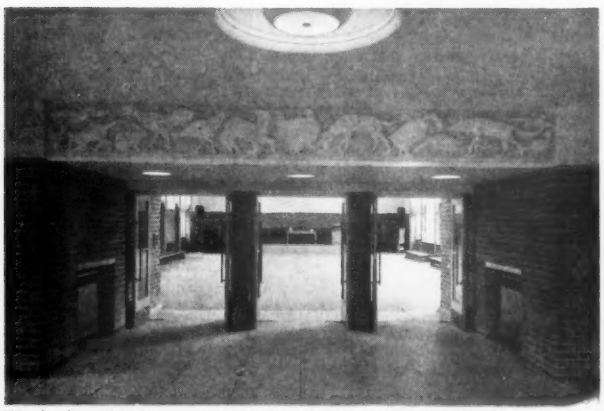
Layout plan of the educational precinct



The north-west side of the junior school, looking towards the boiler house and chimney

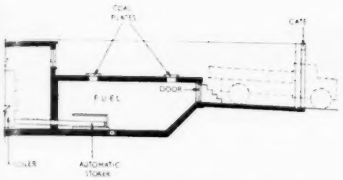


Plan of the junior school. Key: 1, classrooms; 2, general purpose rooms; 3, girls' lavs., 4, boys' lavs.; 5, boiler room; 6, drying rooms; 7, staff room; 8, staff cloaks and lavs.; 9, head teacher; 10, dining hall; 11, kitchen; 12, medical inspection room; 13, waiting room; 14, assembly hall; 15, play shed; 16, meter room and gardeners' store



The junior school: entrance to hall. Frieze by G. Deeley, M.B.E., F.R.B.S.

Junior school; the dining hall

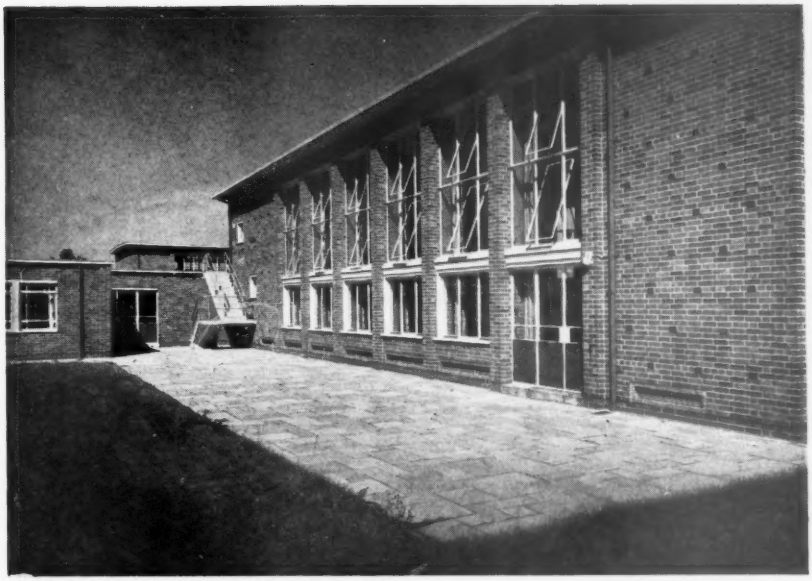


Section through fuel store and yard showing how fuel is delivered level with lorry floor

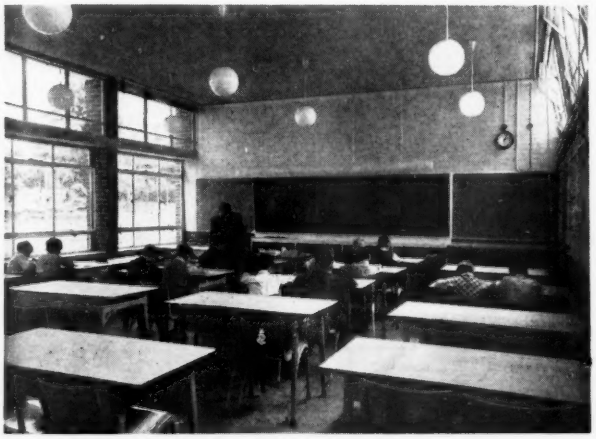
inwards. There is an open-air teaching space outside each classroom and french windows give direct access to them. Interior lighting is generally by tungsten lamps, though fluorescent fittings are provided over the chalk boards in the junior school.

The construction is mostly of load-bearing brickwork, faced with variegated plum-red bricks. The same bricks have been used as dadoes in the corridors and entrance halls. Steel has been used sparingly at a few essential points. The classroom blocks have pitched roofs covered with cedar shingles. This restores to the

(*continued on page* 454)



The junior school; exterior of the assembly hall

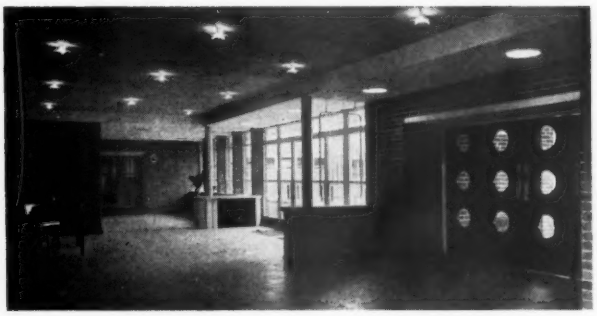


The junior school; a classroom

The junior school; clerestory lighting in a general purpose room

The junior school; boys' washroom

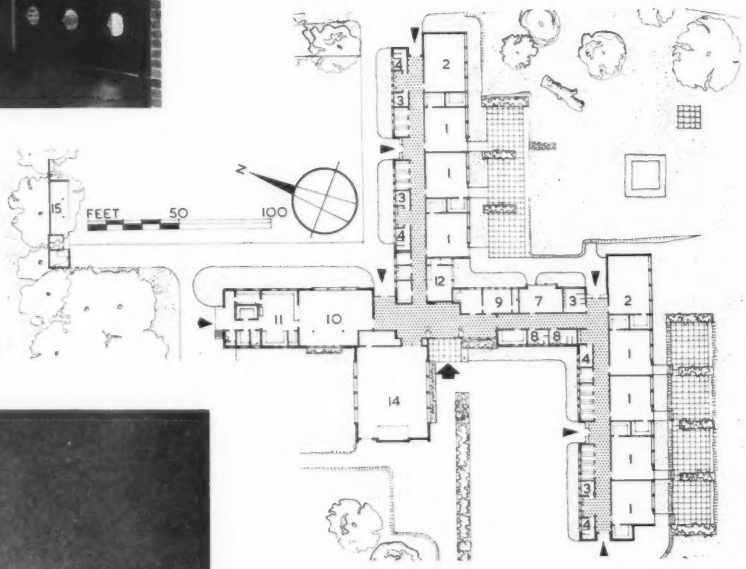
The junior school; corridor

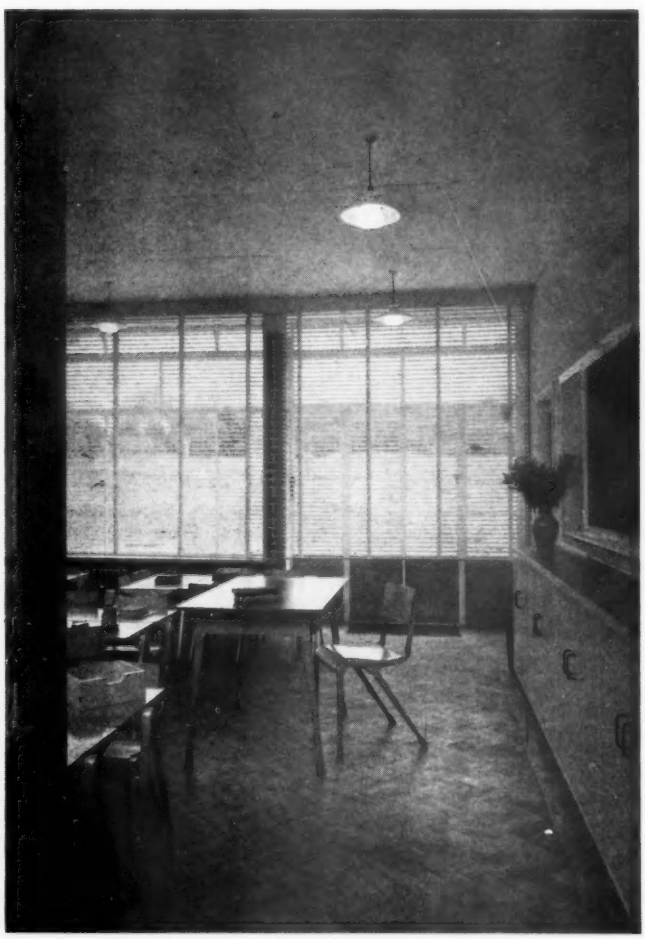


Left: the entrance hall of the infants' school. Below: plan of the infants' school. Key: 1, classrooms; 2, general purpose rooms; 3, girls' lavs.; 4, boys' lavs.; 7, staff room; 8, staff cloaks and lavs.; 9, head teacher; 10, dining hall; 11, kitchen; 12, medical inspection room; 14, assembly hall; 15, play shed

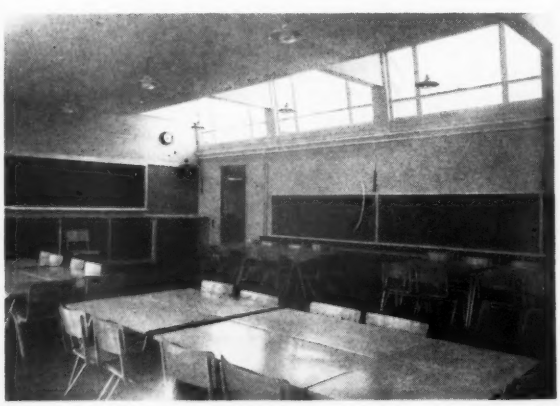
classroom blocks the emphasis they lack when all roofs are flat, reducing the dominance of the bulkier units such as assembly and dining halls. The floors of the classrooms are beech blocks and, in the assembly halls, beech boards. Cement glaze is used for wall surfacing in the cloakrooms and lavatories and paint, direct on brickwork, in the classrooms.

All three schools are heated from a central boiler house in the junior school.





Two views of a typical classroom in the infants' school. The windows are fitted with venetian blinds



The plant is solid-fuel fired by screw-type automatic stokers; there is a neat arrangement for filling the fuel store from a lorry (see section on page 453). Underground pipe ducts carry mains from the junior school to the other schools.

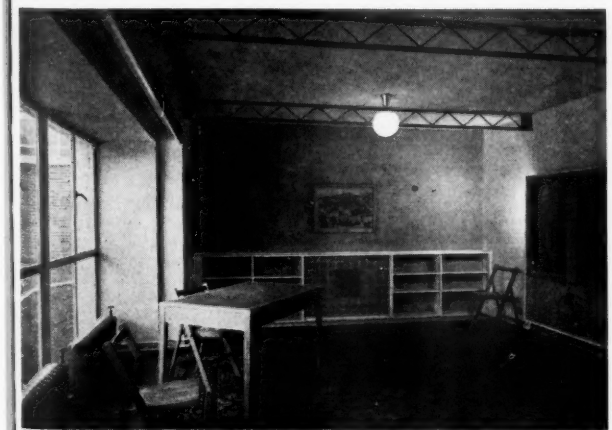
The junior school has a film projection suite, but unfortunately the Ministry of Education would not sanction a stage, and a small platform has been provided. Both the junior and infants' schools have radio reception and rediffusion systems.

The architects' assistants in charge of the work were Mr. A. P. Hodgson [*A*] and Mr. F. I. Martindale [*A*], A.R.A.I.A. The quantity surveyor was Mr. Oswald E. Parratt and the clerk-of-works Mr. H. J. Ratcliff. The whole site was laid out with a scheme of landscaping and planting by Mr. H. F. Clark, F.I.L.A. The general contractors were Messrs. T. and E. Neville, Ltd., of Luton.

The infants' school; assembly hall and main entrance. The raised brick device on the gable wall is the shape of the block plan of the school

The infants' school; open-air teaching spaces. The felled tree trunk in the foreground has been left for children to climb on

The infants' school; the dining hall. Here as elsewhere in both schools warm colour schemes are important elements in the design



The infants' school; the staff room is generally similar to that in the junior school

The infants' school; arrangement of cloaks spaces off the corridor economises space

Please help the A.B.S.
Drawing by Gordon Cullen

Forthcoming Activities of the Architects' Benevolent Society

Following the successful opening of their Centenary Appeal Fund, the A.B.S. are organizing fresh activities to give it a further 'leg up'. First, they are having their usual stand at the forthcoming Building Exhibition, thanks to the courtesy of Mr. Hugh Montgomery [*Hon. A*]. Second, they are holding a repeat of last year's most successful Ball at the Dorchester Hotel, but on a rather larger scale. Third, they are to hold a 'light-hearted architectural competition' in which, with very little expenditure of time and labour, architects can compete, the 'non-returnable deposit' for the conditions of competition going to the Appeal Fund. Each of these activities calls for detailed description.

The A.B.S. at the Building Exhibition

This year the Committee decided against a tombola of the kind that has been run at previous Building Exhibitions. Instead it is proposed to have for sale pictures and specially-designed Christmas cards. Architects and students are asked to present pictures for sale: oil-paintings, watercolours, line drawings, etchings, drypoints, etc., framed or unframed, will be welcome. The Committee ask those willing to present pictures to notify the Secretary of the A.B.S. at 66 Portland Place, W.1, as soon as possible so that arrangements can be made for collection.

Intending purchasers may buy at once or make bids for any pictures they may wish to have. These bids will be recorded and at the closing of the exhibition the highest bidders will receive the pictures. Already several architects have presented pictures and it is hoped that this appeal will bring in many more.

Four architects have kindly designed four Christmas cards. These are Mr. E. B. Musman [*F*], Mr. Frank Hoar [*F*] (*Acanthus* of PUNCH), Miss Norah Glover [*A*] and Mr. Peter Shepheard [*A*]. They vary in subject from grave to gay; some are coloured and some plain. All four designs are of very high quality. The cards will be sold at normal prices and with envelopes. It is hoped that every architect visiting the A.B.S. stand will purchase some, because each sale means a small sum to the A.B.S. funds.

The Annual Ball

Last year the tickets for the Centenary Ball were sold out more than a month before the event. So great was the success of the Ball that the Committee immediately booked a larger room at the Dorchester Hotel—one that would hold 900 instead of 500—and they also re-engaged Mr. Charles Ernesco's No. 1 Band.

The tickets will be £2 2s. each and will include a sit-down supper; last year the supper was approved by even the most exacting and there is no reason to suppose that the standard will be lower this year. The various side-shows were a great success and much patronized. These will be repeated and extended, the students of the Regent Street Polytechnic School of Architecture having again offered their services in making the necessary stands and helping to run the shows. The students of the Architectural Association School of Architecture have also been asked to provide a successor to their hilarious cabaret. Finally, the Ball will be the occasion for the concluding stages of the Architectural Competition—but this deserves a headline to itself.

The Architectural Competition

The subject is 'A Monument to Commemorate the Passing of the Good Old Days of Architecture'. This, to quote the Conditions of Competition, 'will on no account be erected on a site in the middle of Portland Place, opposite the offices of the Architects' Registration Council of the United Kingdom'. Competitors are told that they can disregard all building acts, bye-laws and regulations 'likely to restrict the free play of imaginative architectural design'.

Mr. H. S. Goodhart-Rendel, Past-President R.I.B.A., Mr. Osbert Lancaster [*Hon.A*], Mr. John Summerson, F.S.A. [*A*] and Mr. Rowland Emett (of 'railway' fame) have kindly agreed to act as honorary assessors. They will select seven designs in order of merit which they consider to be 'the most appropriately undesirable' and place their award in a sealed envelope which will be opened by the President of the Society at the Ball. The first premium is £10, the second £5, the third £2 10s., and the authors of the other selected designs will receive £1 each.

Architects, students and 'others' may enter for the competition on payment of 'a minimum non-returnable deposit of ten shillings to the Centenary Appeal Fund'. Payment entitles the donor to receive a copy of the competition conditions and an official envelope in which he is to place his name and address when submitting his design. All he has to provide is a single drawing 'not larger than half imperial or smaller than quarto'.

As will be gathered from the foregoing, both the Competition and its Conditions are somewhat unusual. For example, Condition No. 10 bluntly says, 'Competitors may ask questions but they will not be answered', and No. 12 blows a hole in the competition system by saying 'Cost is immaterial and competitors are not to submit estimates of cost'.

The Competition is connected with the Ball by another arrangement which is as novel as most of the Conditions. The seven selected designs will be on view at the Ball. Persons attending that function will be encouraged, at a charge of five shillings each, to make their own individual awards, placing the designs in the order of merit. Persons whose judgment of the designs is found to be the same as that of the Assessors, or closest to it, will receive prizes after the opening of the Assessors' award by the President, which will take place at midnight.

This lighthearted competition is an opportunity for all those who fancy their powers of design and their draughtsmanship (and what architect or student does not?) to contribute to the Centenary Appeal Fund and to have a little quiet fun on their own account. The Committee hope to receive an enormous number of designs because, apart from the profession enjoying a private and purely architectural joke, each application for a copy of the conditions will mean that ten shillings will be added to the Centenary Appeal Fund.

The President's Christmas Appeal

The activities described above are to raise funds to swell the Centenary Appeal Fund which, as members know, is for the building of old people's homes. There remain the day-to-day benefactions of the Society, the care of those architects and students who are suffering from old age, hard times or incapacity, as well as widows and children of architects. This essential work must not be overlooked in the effort to increase the Centenary Appeal Fund. Later this year the President will issue his Christmas Appeal to all members and we hope that all will respond, even if they are busy with a design for the light-hearted competition.

What you are asked to do

1. Present a picture or pictures for sale at the Building Exhibition, sending a notification to the Secretary of the A.B.S. as soon as possible that you are doing so.

2. Bid for a picture or pictures and buy some Christmas cards when you visit the Building Exhibition.

3. Make up your party for the Ball and apply for tickets *early* (these are likely to be sold out quickly).

4. Ask for the Conditions of Competition and send your non-returnable deposit of 10s. with your application.

5. Submit a design before 3 December.

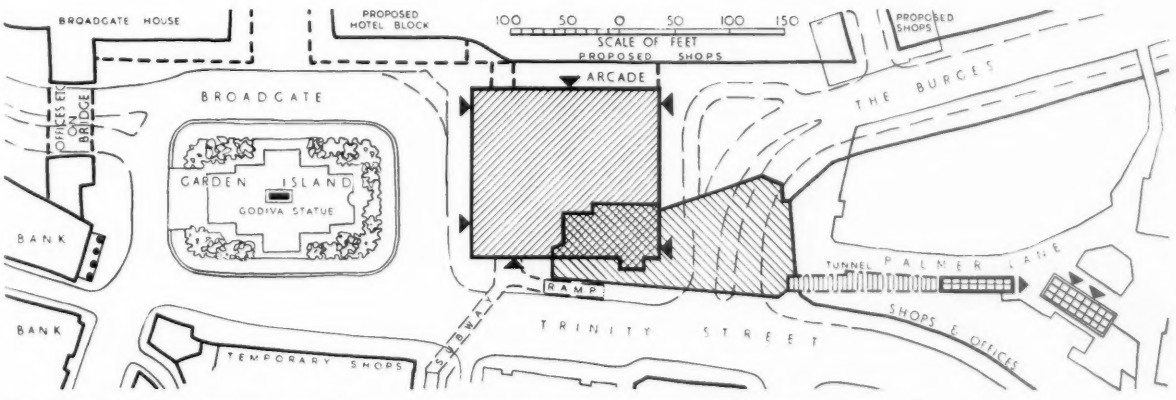
6. Send your donation to the President's Christmas Appeal Fund.

The southern front, facing Broadgate. From a perspective drawing

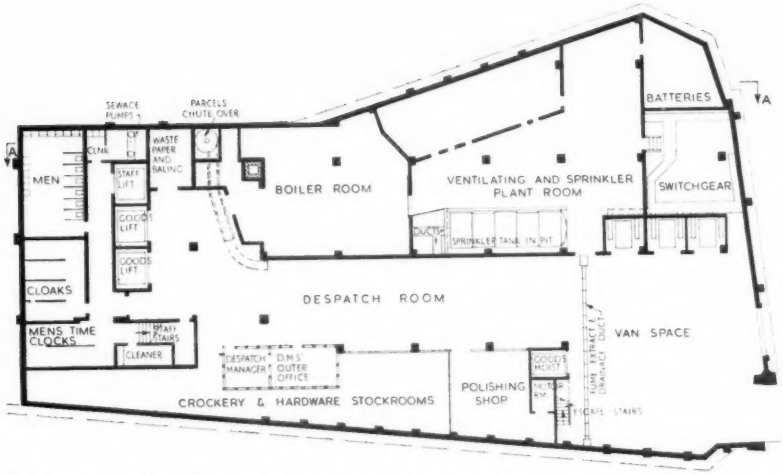
Owen Owen Department Store, Coventry

Architect: Rolf Hellberg [*F*]

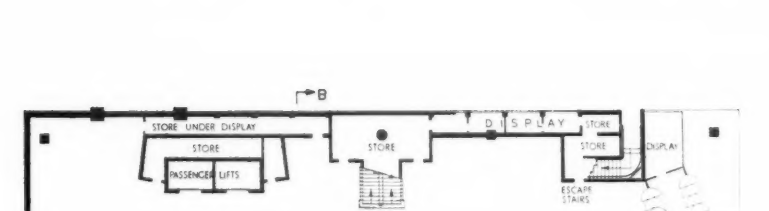
FOLLOWING THE ENEMY raids that did so much damage at Coventry during the last war, the damaged buildings on the north side of Broadgate were demolished, and their site is now marked by a great void, exposing the old basement floor and the surrounding walls that retain the adjoining roadways. In the general reconstruction scheme on which Coventry is now engaged this area will contain block H, which will be the new department store to be erected for Messrs. Owen Owen Ltd. It is a splendid site, fronting the garden island containing the statue of Lady Godiva and having



The general site plan, showing the tunnel leading to the sub-basement, which projects beyond the main building



Sub-basement plan. A tunnel, shown on the site plan, gives access to the van space



Lower ground floor plan. The subway crosses under Trinity Street

road frontages to two other sides, while the fourth will face adjacent buildings but will have a top-lighted arcade connecting Broadgate to the Burges.

It is being strongly urged that clients should give their architects adequate time for thinking out and preparing their designs; in this case the preparation of the general reconstruction scheme and the necessary negotiations have given the architect time to consider the various possible solutions of the planning problem and to design a building that will take advantage of the latest ideas and even go a step in advance of them.

It will be seen from the accompanying illustrations that in certain respects the scheme is unusual: first, the basement and sub-basement will be almost entirely outside the main building and are to be covered by a dual roadway joining Trinity Street to the Burges. In these two floors will be housed all the engineering plant and the receiving and despatch rooms. Secondly, the main building is really two buildings in one, as it contains six floors of stockrooms in the height of four floors of sales departments, with a lower ground floor extending under both blocks.

The disposition of stockrooms is not easy to arrange without undue encroachment on sales space, and they are apt to wander round the sides of each sales floor. At Coventry the problem has been solved by keeping the stock block to one side only of the building, and by providing four mezzanine floors so arranged that the ground and second floors of the sales block run through level to the stock block, while the first stock mezzanine projects below the ceiling of the main ground floor and the third mezzanine similarly projects below the ceiling of the main second floor. After considerable research this arrangement was adopted as being the most economical and convenient one, involving the minimum waste of valuable space and likely to be very easy to operate.

The site falls somewhat sharply from Broadgate to the Burges : this fact has been used to advantage by planning a ground floor and a lower ground floor; the entrances to the ground floor being placed at the east and west ends of the Broadgate front, while the main entrance to the lower ground floor occurs at the western end of the northern front. Both floors can be reached by a staircase leading from the arcade. The lower ground floor can also be entered from a subway passing under Trinity Street. Stairs from the ground floor lead to this subway and a ramp gives access to it from pavement level.

The building will be in reinforced concrete, with mushroom construction for the sales block. Instead of the usual round shape the columns have been designed square on plan and tapering from the ceiling to the floor; they are arranged on a 27 ft. 6 in. square grid. On most floors the square mushroom swelling on the ceiling will not be seen, as it is intended to hang a suspended ceiling some 2 ft. 6 in. down from the soffit. The penthouse on the roof will

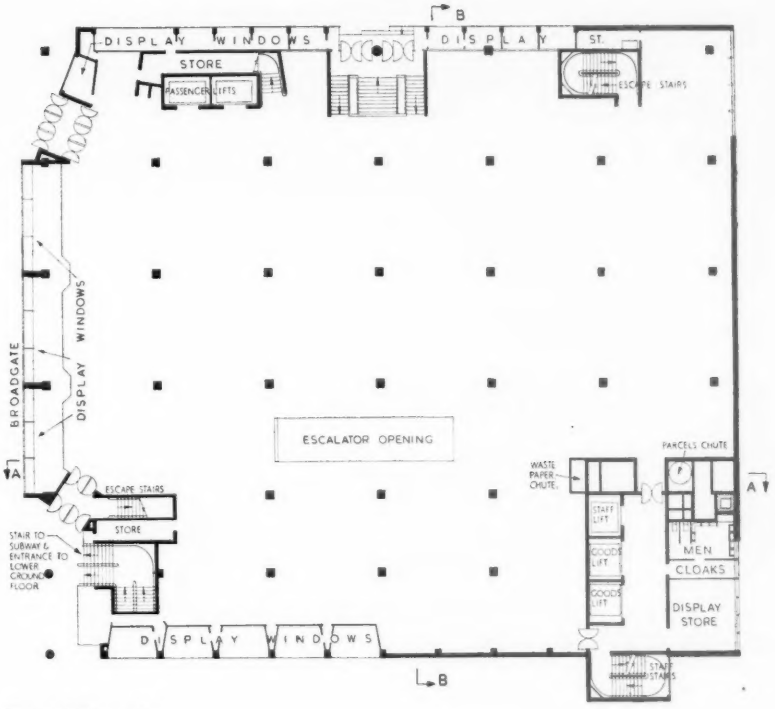
be of light steel construction, fronted with arches slenderly supported.

Modern stores have to provide many facilities in addition to the merchandise they sell—very different from the old, simple shop with its counter and shelves—and here at Coventry will be a cafeteria, beauty shop, ladies' hairdressing, and in the penthouse on the roof there will be a coffee room, a room for parties, and a restaurant opening on to a roof garden. These rooms can be thrown open to form one apartment for special occasions, and in summer the windows on the south front can be slid back to give access to a terrace looking down on Broadgate. There will also be a large cafeteria for the staff, looking on to a terrace. A site as large as this one is needed to provide all such amenities, together with the necessary staff rooms, kitchens, offices, lavatory accommodation for customers and staff, as well as escape staircases.

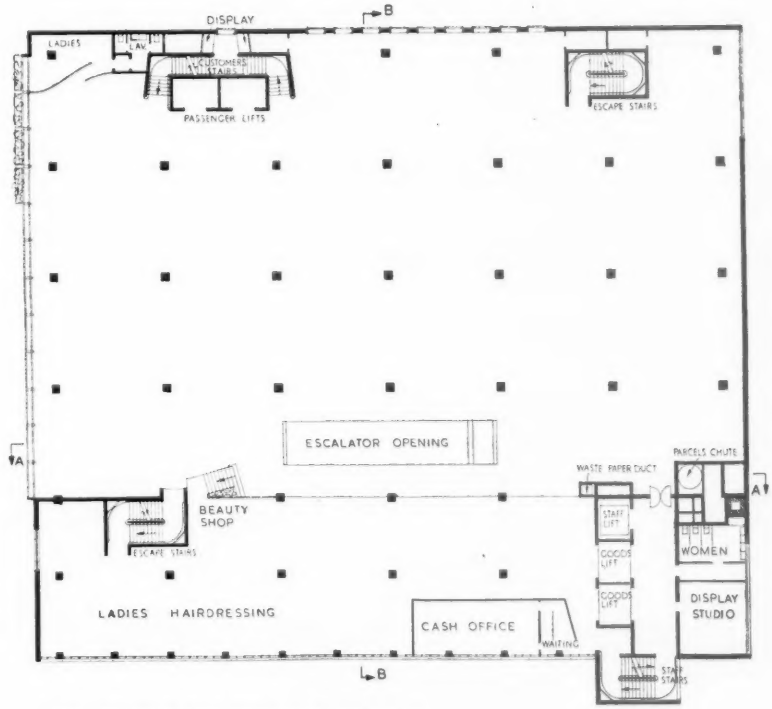
Access to the various floors for customers will be by two lifts set in a staircase, and by escalators running from the lower ground floor to the third (top) sales floor. For the staff there will be one passenger and two goods lifts, and a parcels chute. A tunnel on the north side will give access for vans to the dispatch department in the sub-basement.

Before passing to the elevational treatment, one or two special features may be described. The window display on the Broadgate front may be closed at the back, or left open to give a full view of the interior from the outside, and this will be effected by installing non-reflecting windows of a new type, using flat plate glass instead of curved. A low metal canopy along this front will not only play its part in preventing reflection from the window glass, but will also protect shop-gazers from rain. Above this canopy a window will rise, over 100 ft. long and 40 ft. high, projecting from a frame of travertine marble. This will be a double window, the inside glass line being 1 ft. 6 in. back from the external glazing. In the intervening space venetian blinds will be hung: the space will also provide access for control of the blinds and for window-cleaning purposes. Hidden floodlights will light up this window, so that at night it will appear as a glowing rectangle.

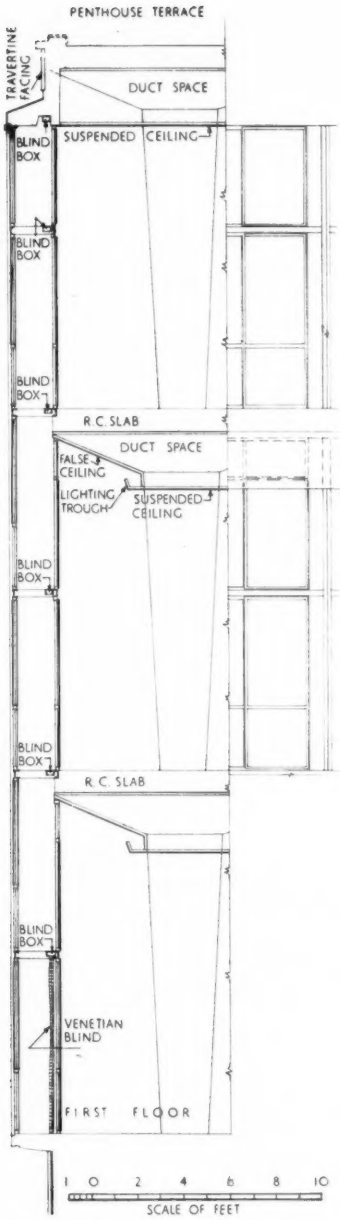
With regard to the elevational treatment, the decision to incorporate six floors of stockrooms in the vertical height of four sales floors, and the fact that a proposed hotel, with five storeys, will butt against the western end of the Broadgate front, raised a point on fenestration. It was therefore decided to treat each façade of the building on its own and to have what may be called 'discontinuous' elevations carried out in permanent contrasting colours and with textures changing from façade to façade. The southern front, facing Broadgate, will be mainly filled by the great window in its frame of marble, but that end of the stock block will show as an uninterrupted wall of 2½ in. brown brickwork, similar to that which will be used in block B of the central reconstruction scheme. On



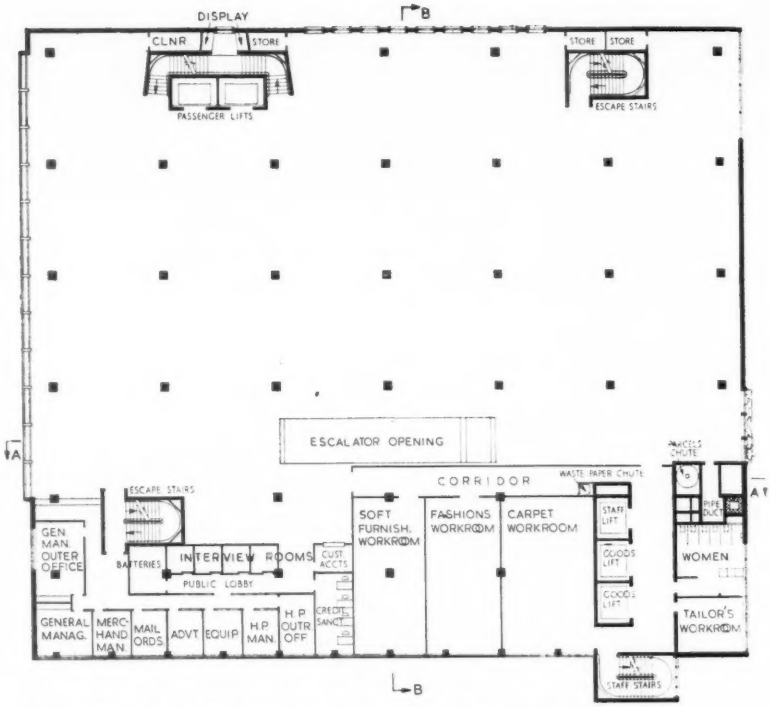
Ground floor plan



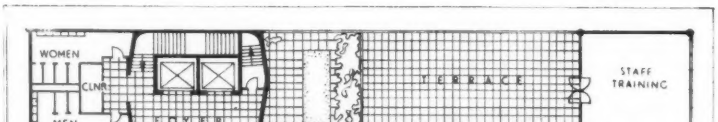
First floor sales plan and second mezzanine



Detail of the big window facing Broadgate showing the double glazing and arrangement of blind boxes and venetian blinds

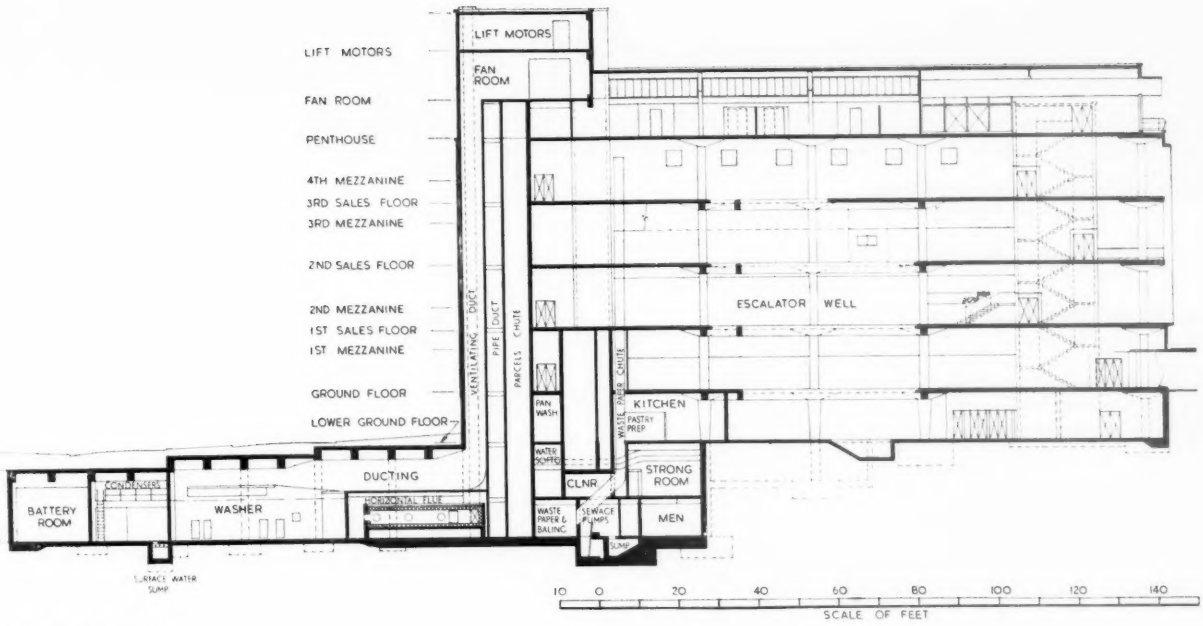


Second floor plan. Here the sales floor is level with the stock floor

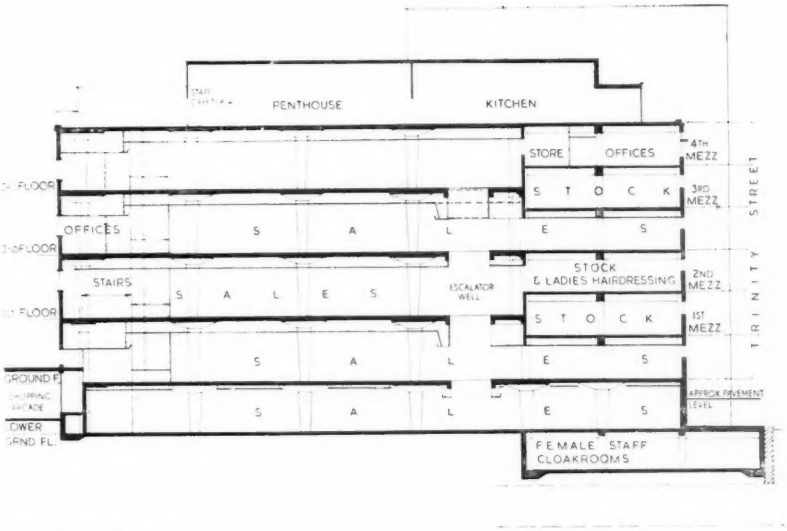


Penthouse plan

the Trinity Street side there will be ranges of long and comparatively narrow windows lighting the stockrooms, set in a curtain wall of deeply-fluted salmon pink terra-cotta which will end against the high tower containing the staff stairs and service lifts. This tower will be faced with green Hornton stone, and brown bricks will be used for the extreme north-east corner on the other side of the tower.



Outline section A-A



Outline section B-B

The north-west corner, showing the arcade

On the northern elevation, facing towards the Burges, the treatment is the reverse of that adopted on the Broadgate front with its great window, as this northern front will present a central feature of an almost unbroken expanse of brickwork, over 60 ft. high and 80 ft. long, but towards the north-western corner the wall stops and the corner is fully glazed throughout its height, giving a view into the various floors of the sales department. Set in the brick wall will be a display panel for announcements.

On the western side the store will front proposed shops and a hotel. The hotel will butt against the store at the Broadgate end: the shops will be some 20 ft. away, and this allows a top-lighted arcade. On this front the building will be faced with brickwork, and windows will catch what light may come across the arcade.

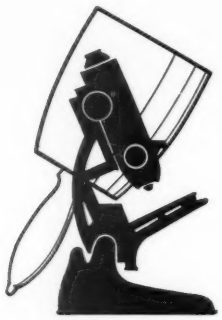
The scheme of artificial lighting for the interior of the sales block is still under consideration: the latest ideas are being studied and it is expected that an interesting and effective system will eventually be installed. The intention is that the lighting and the colour schemes will vary from floor to floor and from department to department, according to the type of merchandise on display, to provide interest and variety.

Preliminary work on the site has begun, and it is expected that the main structure will reach roof level by late 1952, with the basement and the two lowest sales floors in use, and by the end of 1953 the whole building should be in full occupation.

The consulting engineers for the structure are Messrs. Scott and Wilson, who were the consulting engineers for the Royal Festival Hall.

The 1951 Building Research Congress, London

Papers Presented to the Congress



In his book, *Principles of Political Economy*, John Stuart Mill wrote of the common error 'to overlook the natural indolence of mankind; their tendency to be passive, to be the slaves of habit, to persist indefinitely in a course once chosen. Let them once attain any state of existence which they consider tolerable, and the danger to be apprehended is that they will thenceforth stagnate; will not exert themselves to improve, and by letting their faculties rust, will lose even the energy required to preserve them from deterioration.'

Those words were printed in 1867. Had Mill been present at the meetings of the 1951 Building Research Congress, would he have altered his opinion? He would perhaps have replied that he was referring to the ordinary man, the man in the street, and not to the pioneers in any branch of human activity. But possibly something like the same thought was in the mind of Sir Ben Lockspeiser when speaking at the closing session of the Congress, for he said: 'The craft of building stretches back to very early days in the history of civilized man, and for many centuries existed and progressed by handing down from generation to generation improvements in craftsmanship that must have been early won. Mechanical aids, primitive no doubt, but vital nonetheless, established themselves step by step, doubtless against strong opposition from those who had always done without them. *Resistance to anything new is not a new thing*. Building, like other traditional industries, fought its way through, and man exists today in civilized communities because of the patience, tenacity and persistence of its early craftsmen. It owed nothing to science, as we understand the term, for there was none to turn to, and it is only yesterday, as it were, that science began to take a hand.'

Science has indeed taken a hand, and the result is to be seen in the form of three volumes containing papers read before the Congress, and in reading them the word 'science' must be interpreted in a wide sense, as embodying the results of experience and thoughtful appreciation of needs and trends, and not only as a matter confined to microscopes and test tubes.

The work of the Congress was separated into three Divisions.

Division 1

This division was delivered in three parts, and in Part I Mr. Fitzmaurice gave a general review of the influence of mechanization and prefabrication on techniques and cost of building. Mr. Fitzmaurice began by reviewing the factors tending to impede the developments of new techniques in the building industry, and said: 'Firstly, there is the lack of homogeneity in the industry. Let us consider the phases of activity which go to the making of any complex product. They are design, regulation of costs and prices, manufacture of materials, production and assembly of components, and marketing of the product. It is perhaps trite to say it, but it must be emphasized that all these phases of activity are interrelated and must be closely co-ordinated if there is to be any hope of progress. Equally, no one of them is more important than the others, and none should be allowed to dominate the others. As it is, in the Building Industry, these phases of activity are split up and compartmented to such an extent that efficient co-ordination is quite impossible.'

On the purely building side, however, the picture is very different. 'Architectural education in most countries places the main emphasis on æsthetic studies, followed by a somewhat abstract treatment of planning, with building technology bringing up the rear, but a long way behind. The educational standard of entry into the architectural profession in the United Kingdom is such that there is no compulsion on the student to be grounded in the elements of the natural sciences which alone provide a sound basis for technological studies. The case of the contractor is even worse. There is no generally applied standard of entry into the industry, and only the most perfunctory attempts have been made to set any standard of technological education for the aspirants to managerial status, and certainly nothing approaching the high professional status which has come to be regarded as essential for the public works contractor. This being the case, it is hardly surprising to find that there is no recognized forum for the exchange of ideas on technological development in the building industry and, considering the magnitude and importance of the industry, there is a regrettable paucity of ideas to exchange. In effect, the major deficiency in technological education for the building industry is in those spheres which, in other industries, are embraced in the terms "production engineering" and "business management", taken at a professional level!'

Mr. Fitzmaurice then turned to the part to be played by research in the introduction of improved techniques, and referred to the fact that in some of the newer industries, technical developments followed rapidly from the results of research, but did not seem to do so in the building industry. It seemed to him that 'the main reason for the rapid assimilation of research into everyday practice in the newer industries is due to the fact that research and production are so closely integrated. Both research and production are served by technologists having similar attainments. Those on the production side can appreciate the research method and its limitations and can pose problems. Equally, the practical application of the research result is merely a logical extension of research itself.

'In the building industry the tendency is for research to be conducted by organizations outside the bounds of the industry and, inevitably, staffed in the main by technologists with entirely different training and experience.'

Mr. Fitzmaurice ended his review with some thoughts on how to stimulate the development of improved techniques of mechanization and prefabrication. Some useful developments will be produced by intuition or by the painful process of trial and error, and only by methodical study can improvement be effected in a reasonable time. 'On the basis of experience in the United Kingdom a word of caution is necessary. Let us suppose that a new process or a new component has come satisfactorily through all the preliminary stages of development. There still remains the question of the personal reaction to it of the people on the building site who will have to use it. Experience has shown that there may develop quite unexpected resistance to it, for reasons which may not immediately be apparent. This was vividly illustrated when certain prototype machines were sent out for pilot trials on building sites. On some sites the machines met with the most favourable reception; on others the identical machines were condemned as useless. The same thing has happened with some of the new methods of building which have been introduced since the war; a conspicuous success on one site and an equally abject failure on the other. At first sight one would be inclined to suggest that the failures were due to malice, or even to blind prejudice, but, on investigation, it was found that the difficulties were real and deep seated. To make successful use of a new process it is nearly always necessary to make the appropriate changes in site or workshop organization. In a traditional industry the organizational pattern tends

to be very stable, and there are many supervisors who are incapable of appreciating the nature of the changes in organization which may be necessary to adopt an innovation, and even with the best will in the world they can not depart from the methods of a lifetime.'

Against this background of the British scene light was thrown on what is happening in other countries. Professor J. P. Mazure, of the Technical University of Delft, spoke on the European approach to new methods of house construction, and he also referred to the inertia of the building industry, which had caused many endeavours to be made towards the introduction of radical changes in the industry. The difficulties following the last war led the Netherlands to permit new methods of construction to supplement, but not to replace, traditional methods. 'Architecturally, the case for new construction for external walls is not favourable in the Netherlands. The traditional wall is the unrendered brick wall which is outstanding in appearance and durability and ranks high in the minds of most Dutchmen as a national characteristic. Concrete or rendered walls meet with much prejudice.'

Mr. Mazure said that an obvious reason why house construction can not be organized along the lines of industrial mass production is the intricateness and volume of the product. So many different materials and components are necessary for a house that it is out of the question to manufacture it by a simple mechanical process. In his summary Mr. Mazure gave it as his opinion that *in situ* concrete and the use of blocks instead of bricks have few indirect advantages, but some systems of this type are most likely to hold their own in a fair competition with traditional building. Probably small man-handled components or large elements of wall (or floor) size will be more efficient than medium-sized elements. Systems using small man-handled elements can more easily expand or contract their programmes, but those with large elements are most conducive to a modern industrial approach to building problems.

The topic chosen by Mr. C. O. Christenson, of the Federal Housing Administration, U.S.A., was present typical small dwelling construction in the United States. The Housing Act of 1949 authorized the Federal Government, through the Housing and Home Finance Agency, to consider every aspect of housing construction and housing economics to discover how more and better houses may be produced at progressively lower costs, and the Act provides the authority for research. So far, the approach to the use of new materials and methods of construction has been to depend largely on individuals or private organizations to develop materials and methods and to provide the technical data through research. This has the advantage that competition widens the scope of research and provides a constant incentive to produce better products at lower cost. The Federal Housing Administration encourages industry to establish standards within individual groups or industries for methods of test, rating, certification and labelling; these are known as Commercial Standards, and their adoption is voluntary and is developed by manufacturers, distributors and users, in co-operation with the National Bureau of Standards. Where reference is made to a Commercial Standard in contracts, labels or advertising literature, the provisions of the standards are enforceable through the usual legal channels as a part of the sales contract.

Recent trends in construction technique in France were described by Monsieur A. Marini, Director of the Centre Scientifique et Technique du Bâtiment, Paris; he said: 'We are well aware that one of the most important aspects of any building problem is that of the secondary operations (fittings and equipment), but we shall not deal with this aspect in this paper. We have tried to give an idea only of the efforts made in the course of the last years by builders and inventors of new methods. Their main effort has been in the direction of the rationalization of what is called "Carcasing". This does not mean that other equally interesting attempts have not been made as regards the finishing processes, but the first technical phase has been characterized chiefly by the evolution of building methods for walls and floors. In our opinion we are entering upon a new phase, during which the general problem of building will be dealt with more comprehensively than it has been up to now.' He then described how research had attempted to overcome present shortages by developing hollow concrete blocks, frame structures with non-load-bearing panels, and slabs or panels, load-bearing or semi-load-bearing. On the subject of concrete floors, which are almost exclusively used in France, Monsieur Marini said: 'Even if modern floors are entirely satisfactory from the structural point of view, and even if their fire resistance can be considered satisfactory as well, there remains the important problem of the transmission of airborne and impact sound; we still have no means of making a useful comparison between the acoustic values of the various systems, and the methods for improving the sound insulation of floors have not yet been economically worked out. On the other hand, sufficient attention has not always been paid to condensation or staining below the under side of the joists. These factors determine the durability of the ceiling finishes, as has been observed by certain builders who use hollow units and an air-layer or an insulating material under the reinforced concrete beams, but the problem remains obscure, and there is lack of experiment data.'

The JOURNAL has published articles on the use of mechanical aids for building, and this important matter was fully dealt with in the paper by Mr. N. S. Farrow, Director of Howard Farrow, Ltd., and Mr. J. F. Eden, of the Building Research Station.

These papers dealt with what may be called external matters, but one that came right home to architects—or rather, right into their offices—was one by the Swiss architect, Mr. G. Schindler, for he chose as his subject the influence of the industrialization of building and prefabrication on design and drawing-office procedure; the main use of drawings is still on the site.

Among new features, Mr. Schindler pointed out that tolerances for factory-produced components need to be smaller than is the case in traditional building, where they are fairly large. The dimensions on the drawings must therefore be more closely calculated; this does not in itself create any special difficulties for drawing offices, but it is something to which building technicians and draughtsmen are unaccustomed. The preparation of drawings that include everything down to the last detail is so foreign to the building trade that the question arises whether the present staffs of drawing offices are equal to the task. Mr. Schindler's opinion was that, generally speaking, the influence of industrial building processes and of prefabrication on drawing procedure will not necessitate any fundamental alteration in the character of drawing and designing offices.

Part 2 of Division 1 was devoted to the influence of modern research on structural design. In a general review Professor G. Wastlund, of the Royal Institute of Technology, Stockholm, referred to some discoveries and inventions of importance for structural design. 'First of all, we have to stress the discoveries and inventions in the mathematical theory of elasticity, in the theory of plasticity, and the theory of structures. These discoveries include the general laws for stress and strain in solid bodies and the experimental knowledge of the behaviour of strained bodies up to rupture or collapse. The inventions include methods of calculation when the general laws are known.'

The papers in this part were somewhat technical and were mainly of interest to those who are not bemused by formulæ, especially those embracing Greek letters. The subjects were 'Modern developments in reinforced concrete design and the influence of research', by Professor Hjalmar Granholm, of the Chalmers University of Technology, Gothenburg; 'A review of research on reinforced concrete', by Mr. F. G. Thomas, of the Building Research Station; 'Research and the development of pre-stressed concrete', by Mr. A. R. Collins, of the Cement and Concrete Association; 'Shell construction', by Professor A. L. L. Baker, of the Imperial College of Science and Technology, London; 'Trends in steel design and research', by Professor George Winter, of the Department of Structural Engineering, Cornell University, New York; 'Some problems facing the designer in structural steelwork, with particular reference to the steel-framed building and the help given by research', by Mr. F. A. Partridge, of Messrs. Braithwaite and Co., Ltd.; 'A review of research on structural steelwork,

with particular reference to the behaviour of structures beyond the elastic range', by Professor J. F. Baker, of the Department of Engineering, University of Cambridge; 'The needs of research on the application of welding in steel building structures', by Professor F. Campus, of the University of Liège; 'A review of the structural use of timber in the United Kingdom', by Mr. P. O. Reece, of the Timber Development Association; 'Research on the structural use of glued laminated timber', by Professor Carson F. Morrison, of the University of Toronto; and 'Some research contributions to the design of light alloy structures', by Professor A. G. Pugsley, of the University of Bristol.

In Part 3 the papers almost entirely left the realms of formulæ and came down to earth, in more senses than one, for they dealt with the influence of modern soil studies on the design and construction of foundations. Professor Karl Terzaghi, of Harvard University, spoke on building foundations in theory and practice. The Professor struck a note of warning when he said that the 100 ft. dome of St. Sophia at Constantinople was an extraordinary accomplishment of engineering intuition, as it was designed without the assistance of applied mechanics, but when it came to the design of the foundations, intuition did not operate properly, and the dome repeatedly collapsed, during the first centuries of its existence, on account of a progressive outward tilt of the piers.

After a short historical review, the Professor said: 'The scientific stage of foundation engineering came into existence as soon as it was realized by a foundation engineer (and not by a physicist) that every load produces settlement, regardless of what the "allowable bearing value" of the subsoil may be. The settlement depends on many factors other than the contact pressure on the base of the footings and the type of soil in contact with the base. These factors include the soil profile to a considerable depth below the base, and the dimensions of the loaded area. Therefore, a foundation can not adequately be designed unless the relation between unit load and settlement is taken into consideration. Once this obvious fact was recognized the artificial concept of the "allowable bearing value" was replaced by the concept of "allowable settlement", and the efforts of a whole generation of engineers were concentrated on the development of reliable methods for predicting settlement on the basis of the results of laboratory tests.'

The influence of modern soil studies on the construction of foundations was the subject of a paper by Messrs. H. J. B. Harding and R. Glossop, of Messrs. John Mowlem, Ltd. Much, they said, had been done in Great Britain during the last ten years to improve and standardize methods of site investigation, by the introduction of a simple classification of soils, by improved methods of taking undisturbed samples, and by the development of soil-testing methods, both in the laboratory and on the site.

Mr. L. F. Cooling, of the Building Research Station, spoke on some foundation problems in Great Britain, especially where the foundations are on clay. Mr. Robert F. Legget described some special foundation problems in Canada, where they have to deal with glacial clays, silts, till (boulder clay), and muskeg; a word used in Canada to indicate the continuous blankets of matted, waterlogged, partially decomposed organic matter that lie over the pre-Cambrian Shield.

Usually borings are made, or test piles driven, in order to get information about the soil layers under the proposed building, and to determine the length of the piles from these data; but Mr. T. K. Huizinga, of the Netherlands Airport Construction Office, said that only load tests can give the real bearing capacity of the piles; an expensive method not often applied. In his paper on the application of results of deep penetration tests to foundation piles, Mr. Huizinga mentioned that the Delft Soil Mechanics Laboratory are using a new technique for the predetermination of the length and bearing capacity of piles. 'If one gradually increases the load on a foundation plate, the stresses in the subsoil under the plate and also the settlement of the plate increase. With the increase of the load, very soon plastic deformations at the edge of the plate will come into existence. The stresses in the soil have now reached here their ultimate value, and with further increase of the load the resulting extra stresses must be taken over by other parts of the subsoil, so that the distribution of them under the plate changes, and greater settlements will be the result. So the plastic area increases gradually, and at last the plate sinks into the soil as a result of instability. The ultimate bearing capacity of the soil has now been reached.' Mr. Huizinga then described the apparatus used.

The last paper in Division 1 was given by Mr. A. W. Skempton, University Reader in Soil Mechanics at the Imperial College, London, on the bearing capacity of clays. After mentioning that for economic reasons the factor of safety often used against ultimate failure was not more than three, Mr. Skempton said: 'But in many cases the use of a low factor of safety on the failure criterion leads to very considerable settlements, and it is necessary for the designer to be aware at least of the order of the settlements. He can then adopt a suitable type of structure which can safely withstand the deformations consequent upon the movement of the foundations. Yet the modern forms of construction involving continuous beams, portal frames, reinforced concrete shells and rigid or semi-rigid frames are sensitive to differential settlements. And these structural forms are usually more economic in materials and more elegant in design than the older forms; particularly in steel and reinforced concrete bridges. Thus it is often more satisfactory to restrict the settlements by using a higher factor of safety. This will increase the cost of the foundations, but will not necessarily increase the cost of the whole structure. Moreover, so far as buildings are concerned, the interior plastering and exterior panelling are themselves sensitive to settlement. By reducing the deformations the occurrence of unsightly cracking in these elements of the building is also prevented, thereby reducing maintenance charges and enhancing the appearance.'

Division 2

As will be seen from the foregoing, Division 1 dealt with more general aspects of building; Division 2 concerned itself with the materials that go to make a building. Dr. T. W. Parker, Deputy Director of Building Research, B.R.S., opened the proceedings with some thoughts on general trends in research on building materials, with the proviso that the study has reached such a stage of detailed investigations that it would be impracticable to touch on all the items that have been pursued. Nearly all forms of research on building materials, he said, can be traced either directly or indirectly to questions of performance in use, and until recently have dealt in effect with the cure or avoidance of failure in three specific directions: stability, durability, and weather resistance.

On the problem of reduction in costs, Dr. Parker said: 'The high cost of building is probably the most serious problem facing the building industry today. The relative proportion of cost due to materials and to labour differs in different countries, but the cost of materials is never negligible and is often the greater part. The problem is so urgent and widespread that it might be expected that a high concentration of effort of research would have reduction in costs as its objective. At first sight, it does not appear that there is this concentration of effort, because the modes of attack are not always obviously related to this objective. The problem has, in fact, considerable complications, and it is worth while to examine the position in more detail.'

Research on weathering and durability was considered under the two headings of temperate climates and extreme conditions. Under the first head Mr. R. J. Schaffer, of the Building Research Station, dealt with some aspects of investigations in the United Kingdom. Building stones and roofing slates, he said, have to be used as Nature provides them, and must be selected accordingly. The durability of a manufactured article, be it brick, tile, metal, or paint, depends on the properties conferred on it in the making process. It is not, therefore, sufficient to be able to distinguish the good from the bad; the aim must be to know how to control the conditions of manufacture to ensure the highest possible level of quality in the output.

Professor C. A. Lobry de Bruyn took as his subject the work done in Western Europe on weathering and durability, and pointed out that it is impossible to speak of a European climate, as it ranges from the cold, polar type of Northern Scandinavia to the sub-tropical of Southern France, Spain and Italy; therefore the

conditions, and in consequence the durability of materials, differ from country to country.

The effect of low temperature on the performance of building materials in Canada was described in a paper by Mr. M. F. Goudge, of the Department of Mines and Technical Surveys, Ottawa, and Mr E. V. Gibbons, of the National Research Council, Ottawa. They found that there was in general greater evidence of deterioration in building materials in parts of the country where the winter is tempered by frequent mild spells than in parts where the cold weather remains unbroken for long periods.

The paper studied the effects of low temperature on stone, brick, concrete, asbestos-cement, paints, light alloys, and roofing materials. 'The mechanics of frost damage to wet stone is simple. When water freezes it increases in bulk by one-tenth, and the expansive force exerted is about 150 tons per sq. ft. when the water is confined.' 'It has been found that a stone with pores of a very small size is much more likely to be damaged in a freezing and thawing test than is one with large pores because "micro pores", as they are called, are much more likely to be completely filled with water than are large pores.' In cities, soot may collect on snow, and the water from the melting snow is heavily charged with sulphurous matter. If this water lies in contact with a porous limestone it penetrates, causing the formation of calcium sulphate and giving rise to disintegration of the stone. Several examples of this have been observed in buildings in Canada having parapets of porous limestone. The same limestone elsewhere in the building was not adversely affected.

Turning from the effects of frost, tropical conditions were discussed in the paper by Mr. B. M. Holmes, of the Commonwealth Scientific and Industrial Research Organization, Australia, who said it is well known that materials are prone to more rapid deterioration in the tropics than in temperate regions, but that popular views of the severity of tropical conditions are often exaggerated, possibly due to experience under war-time conditions. Tropical deterioration is merely an intensified form of that occurring in higher latitudes; and although there is a high premium on good construction and adequate maintenance, rapid decay is by no means inevitable. In the humid tropics cement is particularly prone to deterioration in storage, and throughout the tropical regions the use of high alumina cement is risky, owing to recrystallization in the set cement at temperatures exceeding 85 degrees F. with reduction in strength. Other difficulties are accelerated setting, inadequate curing, and excessive thermal cracking.

Mr. W. Noble and Mr. E. Rowden, of the British Ceramic Research Association, dealt with developments in the manufacture of heavy clay products in Great Britain, mentioning that research, education and training facilities are being developed, and detailed studies are being made of the raw materials used, of their firing requirements, and of the properties of the finished products.

Mr. J. W. Ludowici (Carl Ludowici Daehziegelwerke Jockgrim/Rheinpfalz, Germany) spoke on the use of clay products in building and the technical control of their manufacture, and pointed out that even excellent quality and competitive prices will not enable burnt clay to hold its own unless the industry studies problems of transport and of operations on the site with the same diligence as the modern building materials industries have already done. 'On the building site we find that, whilst the use of concrete is facilitated by a whole range of modern tools of high output, bricks are still laid by methods and with tools that have hardly changed in thousands of years. Traditional methods misuse human beings as transport and lifting tools. This must be changed.'

Dr. Norman Davey, of the Building Research Station, gave an account of research in Great Britain on the performance of burnt clay products in structures, and its influence on practice, and described some of the tests that had been made.

Concrete quality control was the subject of papers by Mr. R. F. Blanks, of the Research and Geology Division, Bureau of Reclamation, Denver, U.S.A.; Mr. C. L. a'Court and Mr. R. Ward, of Imperial Chemical Industries; and Monsieur R. L'Hermite, of the Laboratoires du Bâtiment et des Travaux Publics, Paris.

Mr. T. Whitaker, of the Building Research Station, gave a review of lightweight concretes and, for the purposes of his paper, gave the definition of lightweight concrete as being a material within the range of density of about 25 to 110 lb. per cu. ft., in which lightness is obtained by the pressure of voids provided by leaving the interstitial spaces between the aggregate particles unfilled, or by the cells of a vesicular aggregate, or by the formation of gas or air bubbles in the cementitious matrix.

Mr. R. W. Nurse, of the Building Research Station, discussed the curing of concrete at elevated temperatures, and Mr. H. F. Gonnerman, of the Portland Cement Association, Chicago, dealt with the durability of concrete in engineering structures, quoting the major factors affecting the durability of concrete structures as being (1) the nature of the aggregates, (2) the nature of the cement, and (3) the watertightness of the concrete. 'Since concrete is susceptible, as are natural rocks, to the freezing and thawing of entrapped water and to the solvent action of percolating water, the more watertight the concrete, the greater its resistance to destructive agencies.' Mr. F. R. McMillan had given as the requirements for watertight concrete, impervious aggregates thoroughly incorporated in a cement-water paste which is itself impervious, and stated that the properties of the paste upon which strength and watertightness rest are dependent on three factors—the characteristics of the cement, the relative proportions of cement and water (the water/cement ratio) and the extent to which the chemical reactions have progressed (the curing).

A paper by Messieurs A. Marini and G. Demarre, of the Centre Scientifique et Technique du Bâtiment, Paris, was on the modernization of the methods used for quarrying and dressing building stones; and Mr. N. Stutterheim, Mr. T. L. Webb, and Mr. B. Uranovsky, of the Council for Scientific and Industrial Research, South Africa, delivered a paper on developments in research on the burning and hydration of lime and its use in building.

Mr. H. F. Broughton, of the Building Research Station, took as his subject the technology and economics of stone housing in Great Britain. In stone-bearing localities buildings used to be constructed in stone, but it was important to emphasize that the basic reason for this was economic—it was the best, and often the only, local material for the purpose, and it would have been uneconomical to use anything else. With the development of cheap transport the use of bricks became more widespread; they were cheap, easier to lay, and required less skill in laying because of their uniform size; furthermore, they allowed a thinner wall and less substantial foundations. In consequence, the cost difference in all areas, between brick and stone, is now appreciable and in many almost prohibitive. Mr. Broughton then suggested some principles of economy in the design of a stone house; the greatest scope lying in the external walling and in window and door dressing.

Papers on paints and plaster were given by Mr. L. A. Jordan, of the Paint Research Station, Teddington; Mr. G. W. Mack, and Mr. H. Andrews, both of the Building Research Station. Those who have attempted a little home decoration will echo Mr. Jordan's words: 'Starting with an ordinary can of paint and a brush there is much scope for disappointment, unless one knows something about how to put it on.' Mr. Jordan stressed that the appearance and behaviour of a finish are really determined by what is put underneath, and that whatever expense is incurred in the preparation of a surface before painting is usually justified many times over by results.

Timber technology was the subject of the last section of Division 2; the authors of the papers being Mr. F. H. Armstrong, of the Forest Products Research Laboratory, who dealt with resistance to wear of timber flooring; Mr. R. A. G. Knight (F.P.R.L.) on plywood as a building material; and Mr. N. A. Richardson (F.P.R.L.) on the natural durability and preservation of timber.

Division 3

The subjects discussed in this Division were the acoustics of auditoria and studios; the heating and ventilation of buildings in relation to summer and winter conditions; the lighting of buildings; and the problems of three specific types of buildings—hospitals, factories and schools.

Mr. Hope Bagenal [*F*] gave the first

paper, choosing general purpose halls as his subject, pointing out the acoustic difficulties that arise in the widely-demanded type of large enclosure destined for every auditorium purpose, such as assembly halls, college and schools halls, hall theatres, and exhibition halls. The most difficult are the large flat-floored assembly halls, hired equally for plays and good concert music. There are, in fact, 'three ancestral reverberation categories—short for theatres, medium for concert halls, and long for "quires and places where they sing". A compromise may be reached for two adjoining, but not for all three.' Mr. Bagenal referred to a special multi-purpose auditorium floor, being a cantilevered frame pivoted at the centre, so that it can be used either as a flat dancing floor at stage level, or swung to give a ramp of 1 in 10 for auditorium purposes.

Mr. P. H. Parkin and Mr. W. A. Allen [*A*], of the Building Research Station, gave a paper on the acoustic design of concert halls, with special reference to the Royal Festival Hall. On the subject of plan shapes the authors said: 'Plan shapes have been much argued. The rectangular plan is so wide at the front that echoes can occur in front seats by reflections from either side, and if narrowness is sought to avoid this risk, the length may become excessive to accommodate the desired number of seats. The fan shape has the advantage in these respects, but is suspected of leading to poor reverberation conditions, because sound tends to be directed too insistently towards the absorbent audience, and the multiplicity of reflections from seating area and rear wall tend to be focused in surges near the front. The rectangular plan should not suffer these faults. Bagenal has suggested a stepped fan, but this does not appear to have been tried in a large hall. The argument is unresolved.'

Professor Vern O. Knudsen, of the University of California, discussed the acoustics of large auditoria, which builders and the lay public would probably define as one having a volume in excess of about 500,000 cu. ft., or a seating capacity of 3,000 or more, while the physicist would limit large auditoria to those having a volume greater than 500,000 cu. ft. provided the prime use of the room is to be speech, and probably greater than 1,000,000 cu. ft. if the prime use is to be music. 'The inherent sources of acoustical defects in large auditoria usually stem from: (1) the large dimensions of the enclosure; and (2) the large, unbroken surfaces which comprise the walls and ceiling —especially when these surfaces are reflective and concave. The large dimensions are, of course, unavoidable, although in good design these are reduced as much as is practical by means of balconies, the avoidance of unnecessarily high ceilings, and other judicious measures that tend to keep the ratio of the volume to the seating capacity reasonably small (usually not more than 200 cu. ft. per seat), and that keep the audience as near as possible to the stage, or other source of sound. Large dimensions tend to emphasize the usual acoustical defects of inadequate sound level, long-delayed reflections (often resulting in echoes), and excessive reverberation. Large unbroken surfaces, especially if concave, further emphasize the defects of delayed reflections, introduce large and deleterious irregularities in the growth and decay of sound, and usually give rise to a non-uniform distribution of sound throughout the auditorium.'

Herr L. Cremer, of the University of Munich, took as his subject the contributions of wave acoustics theory to the design of auditoria. He gave formulæ, and in conclusion said: 'Certainly, everybody who understands the methods and results of wave theory has a great advantage in designing auditoria, but many questions must be decided intuitively, and such acoustic design will always be both a science and an art.'

Monsieur F. Canac, of the Centre de Recherches Scientifiques, Marseilles, gave a paper on open-air auditoria, mentioning that the absence of a roof, and of the reflection of sound by a ceiling, must reduce the reverberation time. Music, it seems, will sound dry and brittle. The spoken word, on the other hand, will be clear but not very loud.

Sound absorption was the subject of two papers; Mr. C. W. Kosten, of the Technical University, Delft, dealing with absorption by porous surfaces, and Mr. F. Ingerslev, of the Danish Academy of Technical Sciences, Copenhagen, with absorption by resonant structures. Mr. Kosten defined sound absorption as conversion of sound energy into heat. Several mechanisms are involved generally in this conversion at the same time: (1) the motion of the air in the porous layer, due to the incident sound wave, invokes viscous forces in the air, causing dissipation of heat; (2) the pressure variations inherent in sound waves give rise to temperature variations in the air. If the waves travel in a porous medium, heat exchange between the air and the skeleton is rather easy. It can be shown that this results in sound absorption when the heat exchange is neither extremely good nor extremely bad. The absorptive qualities increase, as a rule, with the thickness of the porous layer. Painting of porous materials is dangerous, especially at the high frequencies.

Mr. Ingerslev described the Helmholtz resonator absorbers, and said that the individual resonator is rather selective; it can be useful if a simple frequency is to be absorbed, but will not be generally satisfactory when a room is to be acoustically treated to reduce the reverberation time.

Professor Erwin Meyer, of the University of Gottingen, Germany, described some electro-acoustic aids for music and speech; Professor W. Furrer, of the Federal Institute of Technology, Berne, gave an account of modern continental practice in the acoustic design of broadcasting studios; and Mr. T. Somerville, of the B.B.C., surveyed the Corporation's post-war research into the design of studios. The B.B.C. is in good agreement with other workers on the desirable reverberation time at middle frequencies, but differs from European and American practice on the preferred shape of reverberation curves.

In the section dealing with the heating and ventilation of buildings in relation to summer and winter conditions, a number of papers were read; by Professor C. O. Mackey, of Cornell University, U.S.A., on the steady periodic state; by Mr. F. Bruckmayer, of the Government Testing Laboratory for Heating and Acoustics, Vienna; by Mr. Neville S. Billington, of the National College for Heating, Ventilating, Refrigeration and Fan Engineering, London, on the use of electrical analogies in heating research; by Mr. A. J. A. Roux, of the National Building Research Institute, Pretoria, on the effect of weather conditions on heat transfer through building elements; by Mr. A. W. Pratt and Mr. J. C. Weston, of the Building Research Station, on the thermal capacity of buildings; by Mr. E. van Gunst and Mr. D. van Zuilen, of the Netherlands Research Institute for Public Health Engineering, on the influence of moisture content on the thermal capacity of building materials; by Mr. J. W. Drysdale, of the Commonwealth Experimental Building Station, Australia, on building construction in hot climates; by Mr. Poul Becker, of the Danish National Institute of Building Research, on thermal insulation in temperate climates; by Mr. J. F. L. Grocott, of the Anglo-Iranian Oil Company, on air conditioning in the tropics; by Professor F. W. Hutchinson, of the University of California, on radiant heating; and by Mr. J. R. Kell, of Messrs. Oscar Faber and Partners, on plant design for temperate climates.

Mr. Bruckmayer pointed out that the considerable quantities of heat stored inside buildings, in partitions, floors, furniture, heating installations, and so on, affect the cooling of external walls. On the use of electrical analogies, Mr. Billington stated that the study of problems of steady, transient or periodic heat transfer by means of electrical analogies is becoming a recognized tool of the experimental or theoretical scientist. The underlying principle is the same, namely, the similarity of the mathematical equations governing heat flow and the conduction of electricity. The distribution of temperature is as much a potential problem as the distribution of electrical potential.

The paper on the influence of moisture content mentioned that, besides moisture content, another factor causes a difference between the conductivities of the structure and of the raw material, namely, the mortar in joints and renderings. These will have conductivities either lower or higher than that of the original material, and this will largely determine the final characteristics of a structure.

Another section contained papers on the lighting of buildings; Mr. Ward Harrison, consulting engineer of Ohio, and Mr. Phelps Meaker, of the General Electric Company, Ohio, gave a general review on brightness and glare. Dr. R. G. Hopkinson, of the Building Research Station, dealt in

his paper with the brightness of the environment and its influence on visual comfort and efficiency, and pointed out that the study of the lighting of surroundings of the working plane is one that serves to link architects and scientists together, because its value can be appreciated by both, and much of the design data results from experience built up over the long period of development of the architectural tradition.

Mr. H. C. Weston, of the Medical Research Council, London, took illumination levels for building interiors as his subject, and referred to the present standard of 10 lm/ft.^{2} laid down for class-rooms by the Ministry of Education.

The lighting of schools was also dealt with by Professor R. L. Biesele, Professor of the Southern Methodist University, Dallas, U.S.A. He recommended large window areas, clear flat glass, venetian blinds, light-reflective, non-glossy decorative finishes, desk arrangement that keeps bright areas out of the visual field and puts more daylight on the desks, and a good lighting system.

In their paper on factory lighting in Great Britain, Mr. W. A. Allen and Mr. J. B. Collins, of the Building Research Station, emphasized that the subjective impression created by the whole lighting installation, including the decoration, is a more important factor in its success than is the actual level of illumination on the working plane, and is an aid to the sense of well-being in the personnel.

Mr. A. Dresler and Mr. A. L. Brentwood, of the Department of Labour and National Service, Australia, in discussing problems of daylighting in Australian factories, said that in Australia natural lighting assumed a greater importance, compared with artificial lighting, than it did in Britain, as conditions are such that in many factories artificial lighting is rarely used. In their country fenestration is not dictated by daylighting needs because, as most of the industrial buildings are ventilated naturally, fenestration design has to be a compromise between the requirements for good lighting and those for good ventilation.

Mr. L. H. McDermott of the Building Research Station and Mr. G. W. Gordon-Smith of the National Physical Laboratory described records of daylight illumination made at Teddington, explaining the methods used. The computation and measurement of sky and daylight factors were explained by Mr. P. Petherbridge of the Building Research Station, who described various methods; and Mr. G. Pleijel, of the Royal Institute of Technology, Stockholm, also dealt with the computation of daylight factors. In another paper by Mr. Allen and Mr. J. B. Bickerdike (Building Research Station) the influence of daylighting research on the design and lay-out of buildings was discussed. 'Modern daylight studies have reached the point where they not only touch upon æsthetic aspects of building design, but are beginning to infuse modern window design and structural shape with principles and logic in a far better balance than has been enjoyed for several generations.'

Colour was the subject of two papers, one by Mr. Faber Birren, of New York, on the functional use of colour; the other by Mr. H. L. Gloag, of the Building Research Station, on the development of the use of colour in British factories. Mr. Birren said it might be concluded that bright light and warm colours put the human organism in condition for action, outwardly directed interests, and muscular activity. Cool colours and dim light are conducive to introspection, sedentary tasks, and to mental activity. Mr. Gloag said that where concentration and acuity are called for, the colour applied to surfaces immediately surrounding the work should be slightly darker than the material being processed, and this would apply to screens behind the work when introduced to avoid distractions or confusion.

The last section of Division 3 was devoted to the problems of three specific types of buildings; hospitals, factories and schools. Hospitals were considered by Mr. R. Llewelyn Davies [*A*], Director and Architect of the Investigation into the Functions and Design of Hospitals, London; Mr. Mats Eric Molander, of the Central Board on Hospital Planning and Equipment, Stockholm; and Mr. Marshall Shaffer, of the United States Public Health Service.

Mr. Davies said that investigation was most advanced on wards and in-patient departments; the ward being the most complex problem in a hospital. Florence Nightingale had suggested that a good proportion for a ward would be 80 ft. long, 25 ft. wide, and 16 ft. high. Recent study had led to certain broad conclusions; that there are certain advantages in preserving something of the character of the traditional English ward for those not acutely ill, many of whom will be ambulant.

Mr. Molander made the point that there is less need for fully-trained nurses in chronic wards than in surgical or medical ones. Mr. Shaffer's main points were that early ambulation of patients is making for new conception of wards; the out-patient department becomes of increasing importance as the physician makes the hospital more and more his workshop; television may drastically alter many teaching methods, particularly in surgery.

In talking about factories, Mr. F. A. Fairbrother, of Albert Kahn Associated Architects and Engineers, Detroit, recalled that forty-five years ago Mr. Albert Kahn said there was no reason why a factory building need be ugly. Mr. Fairbrother referred to arguments about windowless, or 'black-out' factories. If there were a third world war, the possibility of bombing gave point to the continued use of buildings lacking considerable areas of glass in roofs or monitors, but in his opinion there was some psychological value in having windows in the side walls, even if somewhat distant from the observer.

An introduction to the factors influencing the design of industrial buildings was given by Mr. Edward D. Mills [*F*], who explained that any major industrial development in Great Britain must have Government support. The control of industrial development is under three headings; location, finance and timing. A Board of Trade certificate is required for any factory exceeding 5,000 sq. ft. in area, and the Town and Country Planning Act, 1947, governs the siting of factory buildings. A well-designed factory estate should include multi-storey flatted factories, complete buildings planned for extension, and space for industrial firms wishing to build large units which can be planned communally.

Mr. G. P. Barnett, H.M. Chief Inspector of Factories, London, dealt with working conditions in factories. Physical provision, even of the highest order, will not provide a satisfactory environment unless works relations are good, and they are not likely to be good unless the worker is convinced that his employer has taken thought for his safety, health and comfort during working hours.

Three papers were given on schools; Mr. Lawrence B. Perkins, of Messrs. Perkins and Will, architects, Chicago, spoke on dynamic architecture in American schools. The tested principles of elementary school architecture include open planning, child scale (height of ceilings), merging indoors and out, adequate space, exposed natural materials, light, comfortable colours, community participation, and single-storey construction.

Mr. Alister G. MacDonald [*F*], in his paper on the design of primary and secondary schools in Great Britain, began by tracing plan development from the central hall type, surrounded by class-rooms, to the open plan and the light single-storey structures, catching the greatest amount of sun, instead of solid and compactly designed buildings of two or three floors.

It has now been discovered that an excess of corridor is wasteful, and that there is an art in cutting out space set aside purely for communications. We are reverting to the closed plan again because it is more economic, more community-like, more helpful to the teachers.

Mr. S. A. W. Johnson-Marshall [*A*], Chief Architect, Ministry of Education, dealt with the influence of post-war building developments on the construction of primary and secondary schools, and referred to the value of development groups, whose work should become an effective part of every building research organization, where it must inevitably become the essential co-ordinating element in the technique of development.

The papers read at the Congress surely bore out the remarks of Dr. F. M. Lea, Director of Building Research, D.S.I.R., when at the opening session he said; 'Building is an adventure, both technical and, I am told, economic, and its outcome is never predictable in full. Research can reduce its risks and increase its fruits. That is our task.'

The main entrance front with office block in the centre. The bricks are multi-coloured, machine made, sand-faced

Factory at Twickenham

For Reliance (Nameplates) Ltd.

Architect: Lesslie K. Watson, M.B.E., T.D., M.A., A.M.T.P.I. [*F*]

THE OLD FACTORY on this site was burnt down in April 1948. It took just a year to settle the insurance and get the necessary permits for rebuilding, and in April 1949 a contract was signed for a new factory. Just before work was due to start a long-awaited decision from the Ministry of Town and Country Planning ordered the building to be set well back from the original frontage line. This made necessary the preparation of fresh drawings.

The clients make nameplates, watch dials and instruments, and their processes can be easily upset by dust and by changes of air, temperature and humidity. They also require especially good natural and artificial lighting, and precautions had to be taken to prevent another fire.

While the design was being made, the R.I.B.A. Conference on factory design entitled 'The Architect in Industry' was held. One of the methods of daylighting recommended in a technical paper at the Conference was used in this factory almost without alteration, and has proved very satisfactory. The artificial lighting is sometimes by fluorescent tubes and sometimes by incandescent lamps. Good general lighting has sufficed for all departments, except where very close work is done, and there the operators have their individually adjusted lights. In the single storey part the main fluorescent lighting is built into the false ceiling near the patent glazing, so that the light falls on machines from the same direction whether by day or by night. This is shown in the photograph on page 471.

Reinforced concrete was used for roof principals, purlins, eaves brackets and floors. The units were all pre-cast on the site with the aid of vibrating machines. In the interest of economy the brick walls were used to carry loads wherever possible.

As reinforced concrete was used for the roof principals, there was no need for the ties and struts normally used in steel trusses. This meant that the roofs could be kept comparatively low and yet there could be ample height in the rooms. The sprinkler pipes, electric conduits and some other services are carried behind the fibreboard ceilings.

The main factory space is heated by means of warmed air carried in ducts in the ceiling, and the extracts from the etching and spray departments ensure a steady circulation of air. In the summer the plenum system is used for ventilation. The department which makes luminized watch dials is fully air conditioned.

Main entrance to the offices

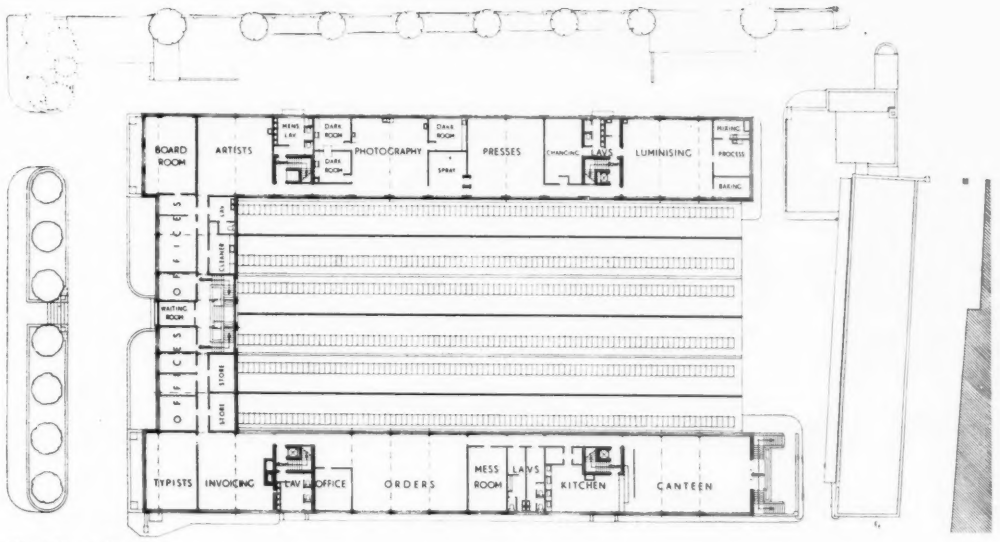
Full use has been made of colour to make the interior of the building restful yet stimulating, and the machines and work benches have been included in each colour scheme. The new furniture and furnishings were bought with the advice of the architect, and in some cases were designed by

him. He also designed the gardens and their planting. The exterior of the building can be illuminated at night by floodlights, which are incorporated permanently but inconspicuously into the lay-out in front of the building.

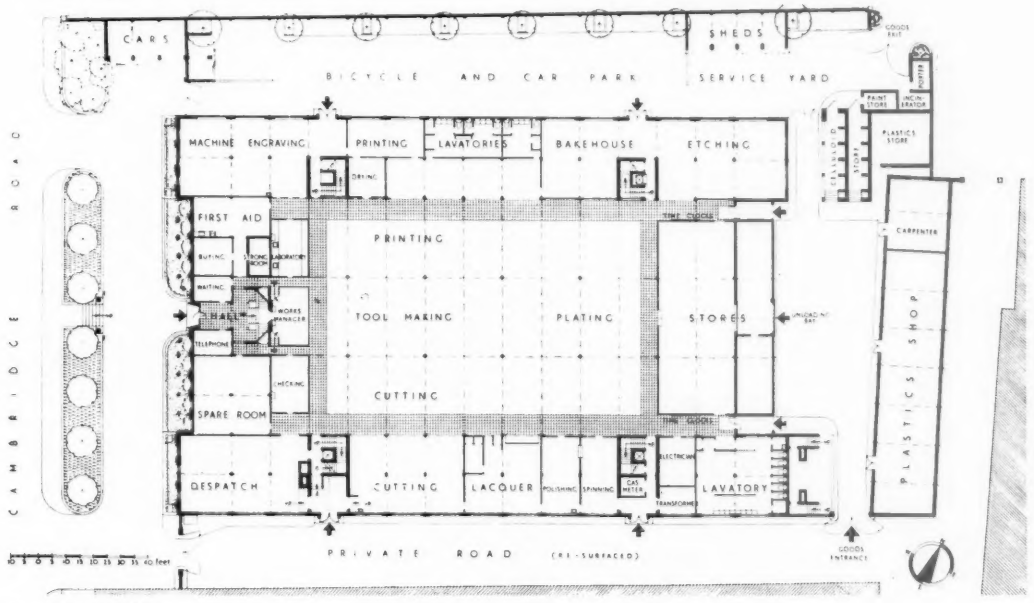
The factory was occupied one year after the work began. The lay-out of machines and offices was carefully planned, and the transfer to the new from the temporary premises was made over three or four weekends so that no production time was lost.

The cost worked out at £2 7s. 2d. a sq. ft.

The north front looking over the bicycle and car park

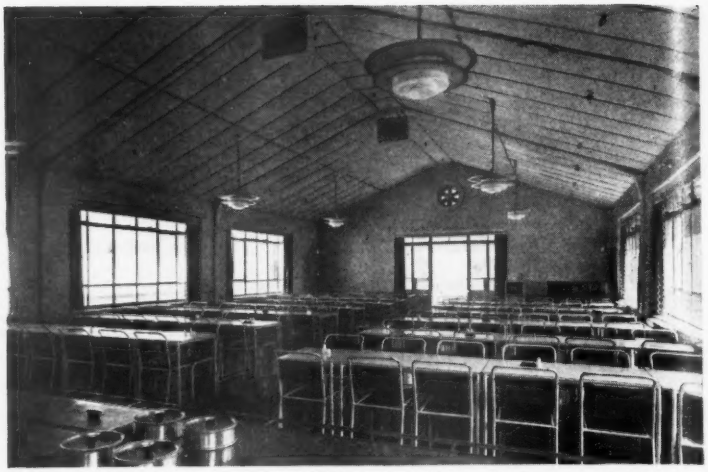


First floor plan



Ground floor plan

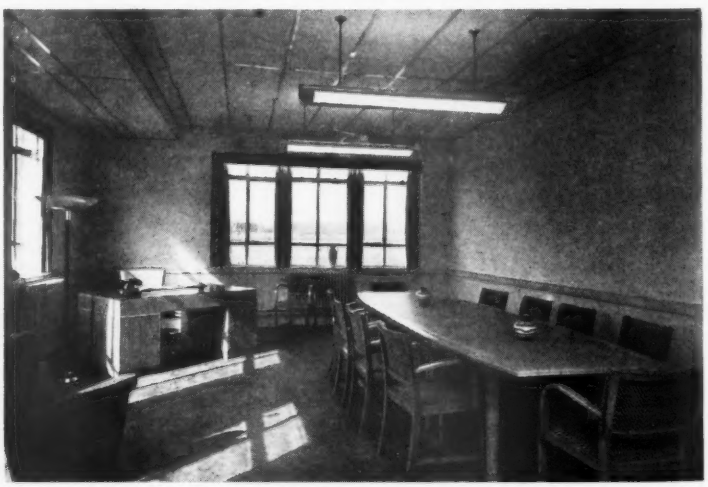
Typical external doorway with Doulting stone jambs and York stone head



The canteen. The ceiling is a faint pinkish tone and the walls fawn cement glaze

The office of the Works Director has a grey ceiling and dado and off-white walls

The waiting room has grey walls and pink ceiling. The carpet, designed by the architect, is blue, biscuit, grey and white



The boardroom in cream, pale biscuit and beige, and with a fawn carpet. The table, in oak with leather top, was designed by the architect

In the main factory fluorescent tubes are built in next to the roof lights and warm air ducts in the centre of each bay of the ceiling. Sprinkler pipes are also behind the ceiling. There are local incandescent lights for individual workers

Under construction. Note the cradles for the fluorescent lighting above the roof lights and the roof insulation

The main front has built-in floodlighting from panels in the low retaining wall. Two of these are seen in the lower photograph

Fischer von Erlach, Architect to a Monarchy

By Edward Passmore [*A*]

IF ONE CLIMBS the south tower of St. Stephen's Cathedral to look out over Vienna the prospect today is one of a moderately sized city or a large town. On a fine day the boundaries are clearly discernible: to the north Leopoldsberg and Kahlenberg rise up flanked by the Wienerwald; to the north-east the Danube is bounded by factories and workers' flats; the east flows away to the Marchfeld and the west past the Schönbrunn to the hills and beechwoods.

Vienna, like many ancient cities, has been surrounded over the centuries by a series of concentric rings; the rings are definitely asymmetrical with its medieval heart, for it has always tended to turn its back upon the Danube and today the Innere Stadt with its narrow tortuous streets exists as a somewhat beleaguered witness to the grandeur and folly of man.

The city today carries the remembrance of things past with a desolate air. Many of its finest buildings were parlously damaged in the last war; the genius of Hapsburg architectural culture was open to the warring sky and the Vienna of many past sieges came near to total eclipse. The city survived, yet how many people must have compared its plight and the spirit of the time with that in the now almost legendary period of the late seventeenth century, when Starhemberg and Sobieski finally pushed the Turks back from the gates of the city, thus putting a finish to the long period of menace and unwittingly laying the foundation of the renaissance of Austrian culture which was to follow in the next century (a culture so endemic in the people as to cause the earnestness of the 19th century to be largely by-passed) only to meet its end at the outset of the First World War.

If we take a century to constitute a concentric ring around our vantage point in the south tower, the last ring would epitomize 20th century utilitarianism—the national socialist housing and the late suburbs. The 19th century would be represented by the Ring itself with its bold planning and eclectic buildings mirroring the birth of the Viennese middle class, which in turn would be represented by the growth of the inner suburbs. With the third ring, that of the 18th century, we are, in truth, at the heart of the matter. The Hapsburgs were at the height of their power, into it were born Mozart and Schubert, and in it worked the twin giants of Viennese architecture, Lucas von Hildebrandt and Fischer von Erlach.

It could be said that anyone of talent—architectural talent—could be counted lucky to work in such a period. Austria had emerged from her 16th-century medievalism; from an atmosphere of Gothic gloom she had, by way of Dürer and Cranach, opened to a late flowering (late, that is, compared with Italy from whom she was to obtain so much of her culture) and then to embrace with extraordinary ardour the baroque spirit, that admixture of religious fervour and histrionic representation. The two factors which caused the birth of the baroque were first, the Counter-Reformation, with its strong accent upon expressionism, and secondly the aspirations and religious power of the Hapsburgs. From such a combination rose the spirit of Renaissance, pitiably short-lived in a Europe of strife and changing values, yet leaving as its legacy a golden age of artistic achievement, represented in the field of architecture by the work of Fischer von Erlach.

In the 17th century the Hapsburgs, in their desire for the exotic, invited and commissioned Italian artists and architects to Vienna and for almost a century their hegemony was undisputed. The city, for so long German in character, turned its face to the south to receive the Renaissance, but the culture was Italian and was to remain so until a child, born in Graz in 1656, was to grow to maturity, study abroad and return to Vienna to leave the touch of his genius on the city in a space of roughly thirty years. Erlach as a boy frequently visited Vienna from Graz. It was the old Gothic Vienna gradually being replanted with designs by Italians. His early youth was spent in the study of these new buildings; it is also recorded that he trained as a mural painter and worked on some architectural sculpture. At the age of twenty-four he went to Italy, and for the northerner the experience of crossing the Alps and taking the path to Rome profoundly affected his architectural talent. The great era of Italian architecture was drawing to a close. Michelangelo had been dead for over a century, but his genius had supplied the fount of Italian baroque art. Borromini was dead and Bernini was to die in the first year of Erlach's visit. By this time the baroque had left Rome to exert its influence in northern Italy, later to cast its spell in Spain, Portugal and Germany, and of course Austria. In the manner of a student of the time Erlach saw and drew; in Rome the later course of the Renaissance could clearly be delineated, from the gravity of Bramante and Raphael in the high Renaissance to the vast genius of Michelangelo, then to Vignola, Bernini, Borromini and Cortona.

Erlach assimilated the seemingly spatial miracles of the masters—the use of concaved and convexed forms, the oval domes and the general plasticity of form which at times results in the illusion of the whole building being set into motion. The excitement of such discoveries had a profound effect on him, for Graz and Vienna had shown nothing of this nature. Here among so many other things were churches that expressed so vividly the aspirations of the religion of his country and time; he witnessed the building of the front of Borromini's S. Carlo alle Quattro Fontane in Rome with its undulating surfaces and beautifully designed detail; he saw Cortona's little masterpiece S. Maria della Pace with its perfectly controlled yet exciting plan form, and Vignola's Gesu Church with its fusion of the medieval nave form with the Renaissance central dome; above all he saw the work of Michelangelo and his great baroque dome of St. Peter's. For five years Erlach studied widely, producing many variations upon the existing baroque themes, and, although it was Bernini who had achieved the greater status as an architect, Erlach found his inspiration in Borromini. Here was an exciting if somewhat erratic genius who moulded his buildings to suit his emotions. As a painter painted a picture or a sculptor formed his stone to suit his basic idea, Borromini used architectural material to suit his; miraculously, as in so many baroque buildings, the result met with reasonable success on the practical side as well.

Returning to Vienna, Erlach found the city unsettled with the machinations of Hapsburg power politics. True, the Turkish army had been crushed, but the Spanish war of succession occupied the military and the Hapsburgs were nothing if not militant. Erlach during this interim period worked as a mural painter and it was not until 1687 that a chance of sorts came along. He was put in charge of the erection of the Holy Trinity Column or 'Plague' Column in the Graben—Leopold I's gesture of thankfulness at the departure of the plague from Vienna. This extraordinary baroque fantasy in Carrara marble (Fig. 1), with its billowing clouds, cherubs and the final symbolism of Father, Son and Holy Ghost, standing so much in its own right in the centre of the Graben, remains one of Vienna's great contributions to baroque sculptural art and thought. Erlach did not design it. Burnacini, an Italian architect, provided the idea but undoubtedly Erlach used much of his sculptural knowledge in its building. Here is as good an example

Fig. 1: The Holy Trinity or 'Plague' Column: a dream of baroque

Fig. 2: View of the Holy Trinity Church, Salzburg, by night

as any of how the artist's conception has complete superiority over the material. It is, in short, a contemporary designer's nightmare. The stone is twisted and tortured to provide an effect and used as a quite insignificant material to present the central theme—the baroque idea, the conception of heaven and earth and the universe. To pass the Graben Column today is to see a dingy, distinctly overlaid mass of sculptural embellishment, but at its inception the passion of inspiration could not be denied and the result was a minor masterpiece of sculptural balance and form.

Salzburg was continuing its brilliant era of church building initiated by Wolf Dietrich and, near the turn of the century, Erlach was invited by Archbishop Thun to design three churches in the city—the University Church, Holy Trinity and St. John's Hospital. In the first, Erlach displays a marked Italian influence, naturally enough, yet his handling of form and detail is remarkable for its maturity. His plan, the combination of the long nave and central dome and transepts, reflects the study of Vignola and possibly Alberti's church of St. Andrea in Mantua. In the Holy Trinity Church (Fig. 2) a central plan was used, possibly because of the increased breadth of the site, and this wonderfully urbane conception shows full well the gradual emergence of Erlach's personal style, with the rusticated ground storey, the use of orders to the upper storeys and the strongly detailed door and window openings.

In Vienna the period of great building was starting. Churches were needed to strengthen the Jesuit cause. Palaces were needed for the princes and the military heroes of the time; the Liechtensteins, Schönborns, Czernins and the Schwarzenbergs wanted and had to have grandeur; Erlach with his growing reputation was at hand. He was commissioned to design the Schönbrunn Palace as a summer palace for Joseph I. He produced a scheme, very large, very grand, with the high ground topped with the slightly preposterous Gloriette to be silhouetted against the sky (Fig. 3). The scheme was approved but never built, at least not in Erlach's lifetime; possibly Joseph feared competition from Versailles. Later in the century Maria Theresa built it; in the age of rococo, Erlach's scheme was mutilated by the Italian Picassi, but the Gloriette *was* built. Such delays hardly affected Erlach; he had and was to have as much work as he could possibly do in the Schwarzenberg Palace with its measured external form enclosing the high baroque interior in which his architectural forms initiated a memorable partnership with the mural painting of Daniel Gran—the partnership which culminated in the Hofburg Library. He laid out the gardens of the Liechtenstein Palace and designed the Belvedere. He then came to grips with the problem of close city building in the Winter Palace for Prince Eugène of Savoy in the Himmelpfortstrasse, a typical Innere Stadt street, narrow and cavernous, the antithesis of the spacious baroque scene. He gained scale by using a high narrowly pilastered order above the rusticated ground floor. The result was a distinguished façade, dominating the street yet essentially unpretentious in expression.

By now Erlach was approaching his middle years and his output was enormous. He designed the clam-Gallas Palace in Prague, prepared at least three schemes for castles in the Bohemian forest and saw one built. In Vienna he had been appointed court architect and undoubtedly had a trying time in attempting to please so many noble tastes at the same time. In 1716 he designed the Karlskirche, a huge building reminiscent of his earlier success in Salzburg—the Holy Trinity Church—but here Charles VI wanted scale and Erlach complied (Figs. 4 and 5). The site was adequate for all purposes and his design shows a frontage of great breadth, a six-columned pedimented portico and two beautifully detailed flanking towers; surmounting all is a great oval dome and juxtaposed between the flanking towers and the central entrance portico are two free-standing columns based in design upon Trajan's Column in Rome.

The Karlskirche has its critics; the dome has been considered too elongated in its oval form and too high; another criticism is that the detailing of the interior is too basically Italian in derivation, and in parts lacking in refinement. A 19th-century Viennese critic writes of his embarrassment at standing near the Trajan Column in Rome and obtaining a view of the nearby church of Santa Maria di Loreto by Sangallo the Younger; he was embarrassed, he wrote, to discover Erlach's inspiration for the Karlskirche quite so suddenly. To balance such a criticism the church of the Santissimo Nome di Maria, also near the column, and designed by Dérizet in 1738 in commemoration of the defeat of the Turks in Vienna, was obviously inspired by the Karlskirche. The Karlskirche remains a masterpiece, its triumphal aspect ensures that, and its genius lies in its completely endemic expression of Hapsburg and Viennese culture. That it is rather overpowering is true, but in the Austrian high baroque period this was a studied point; its wide, dominant site, the aspirations of

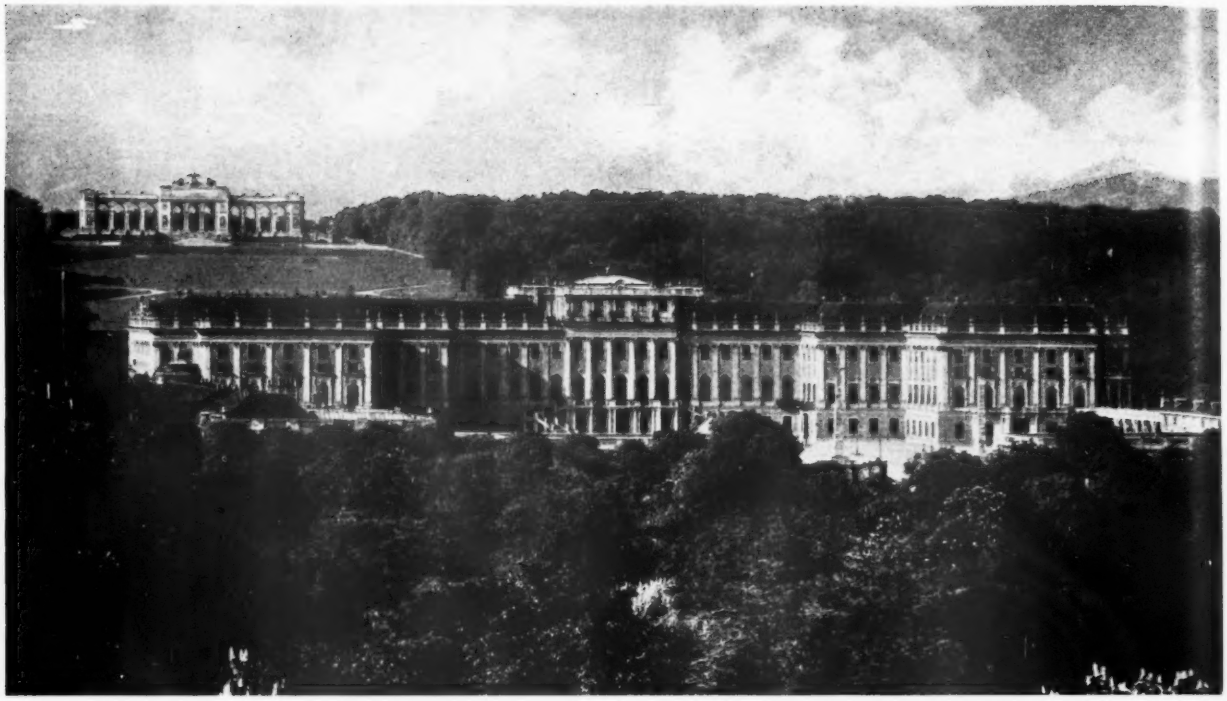


Fig. 3, above: Schönbrunn, with the Gloriette in the background. Schönbrunn is only based on Erlach's original design, and the stone and brick treatment hardly do his original conception justice. Fig. 4, below right: the Karlskirche, main elevation

Charles VI and the religious fervour of the time combined to produce Erlach's somewhat overpowering masterpiece. The Karlskirche took twenty-two years to build; at its inception Erlach was in the last decade of his life, and it is probable that the lack of quality in the internal detailing can be attributed to its having been supervised by somebody else.

In his final phase he designed the extensions to the Hofburg, including the Court library and the Spanish Riding School. The library, his greatest secular work, illustrated to perfection the essence of baroque decorative thought in the fusion of painting and sculpture into the structural and architectural whole; expression of structure and material is lost in the votive force of the conception. The library, with its great rotunda lit by high oval windows, its three-centred arches and Corinthian order, a massive conception of a great mind, is undoubtedly the greatest monument to the Hapsburg dynasty. Working with a brilliant band of artists and craftsmen, Erlach crystallized the universalism of baroque thought, gave it spatial reality and instilled into it a sense of profound culture. The eye never rests; from the sweeping curves of the bookshelves it travels over the decorated walls, under the embossed soffits of the great three-centred arches to the further arches with spandrel painting by Daniel Gran, yet miraculously no sense of unrest is apparent. The phantasmagoric *éclat* of rococo is avoided; here is high baroque, brilliantly fused and conceived. Erlach died in 1723, 67 years of age, probably through overworking, for he was then experiencing a particularly troublous time in designing the Imperial Stables, to house 600 horses, with a 'Court for Grand Carousals', amphitheatre and a horse pond.

Fig. 5: the Karlskirche, Vienna: view showing the masterly detail and brilliant juxtapositioning of the flanking columns

His son, who had worked with him on many of his buildings, carried on his work, and his many pupils and their pupils produced architecture which bears the definite stamp of the master, so much so that much has been attributed to him which is in fact the work of other hands. Yet such a point merely illustrates the extraordinary power of Erlach's manner, which all but covers the terms 'Austrian Baroque'—not quite, for rivals did exist. Lucas von Hildebrandt, with his talent for the elegant, designed the Belvedere Palace as the summer home of Prince Eugene of Savoy—an essay in late baroque in the grandest of manners. Erlach's chance to rival such grandeur went when his design for the Schönbrunn suffered so many delays in execution.

In the stream of European architectural development the architecture of Vienna in the first half of the 18th century forms a curious 'pocket of resistance'. Austria received the Renaissance fully but late. In Italy it had flowered for two centuries and in its decline travelled north from Rome to cast its spell in the form of rococo in Southern Germany, Spain and Portugal. In Vienna the spirit of baroque persisted; it was the outward expression of Hapsburg megalomania—imperial and religious. The frills and furbelows of rococo inevitably arrived towards the middle of the century, but in Erlach the hierarchy of the Hapsburg Court found the ideal interpreter of their aspirations. His work and talents were of the age—the age of the full-bottomed wig, the representational phase of the opera, of Gluck and later of Mozart, of a new rigid pattern of Court behaviour. From a late medievalism Vienna flowered directly into the baroque, with its unique vision of the world, which admitted to no boundary between heaven and earth, its transcendental qualities finding expression in art forms of sensuous vitality.

Looking back at such a period from a world of vastly different values, one lesson at least can be learnt—the seemingly ideal co-operation of the architect with his artists and craftsmen. While such co-operation lasted, architecture reached its peak as a representational art; with its passing an almost unavoidable era of eclecticism took its place. Today we travel a road fluid with experiment and doubt, and the integration of architecture with the allied arts as exampled by the baroque period is well worthy of our study.

Book Reviews

Construction and Equipment of the Home, by the *American Public Health Association: Committee on the Hygiene of Housing.* (Standards for healthful housing *series.*) 10½ in. x + 77 pp. text diags. Chicago: Public Administration Service. 1951. $2.50.
This publication, the third in a series planned to set forth desirable standards for what the Americans call Healthful Housing, is issued by the Committee on the Hygiene of Housing of the American Public Health Association. It was apparently not approved by the governing bodies of the Association, but has been issued by the Committee 'as the considered judgment of its members'. Why anyone belonging to such an association should object to such a report is not clear, even though it contains criticism of many of the existing building codes at present ruling in the States.

What is suggested in this report is the replacement of out-of-date *specification* codes by *performance* codes, permitting the use of any materials or methods which will adequately meet the requirements of modern housing standards. This of necessity gives a far greater responsibility to the administering authority, since he must have expert knowledge himself, or access to responsible expert knowledge, to decide whether the performance standard has, in fact, been reached. It may be that the governing bodies of the Association fear a slump in certain building materials if this revision of codes is carried out.

The English reader may be surprised to learn that American building codes are so out of date. We sometimes forget that our model bye-laws and the encouragement given to experiments in building methods since the war have put us well to the fore in building matters and particularly in the field of housing. But one must remember that the problem of setting anything like a national standard in a country as large and as varied climatically as the United States is greater than the similar problem here.

This report and its recommendations show a courageous attempt to point the way to what might be done in the field of low-cost housing standards in the States. If the difference between the urban and rural standards is as great as would appear from the chapter on sanitation, it is high time that reforms were initiated.

PATRICIA OWEN [*A*]

Drainage and Sanitation, *&c.*, by *E. H. Blake* (later: and *W. R. Jenkins*). 10th ed., by *L. B. Gumbrell.* 7¾ in. xii + 572 pp. text illus. Batsford. 1951. 15*s.*
Nearly forty years have elapsed since Blake first appeared, and the latest edition is the fourth to be published since the last months of the war—a proof, one supposes, of its ageless appeal to many important

professions. Certainly it is stuffed with information, it has been revised in bare essentials, and it is cheap by present standards, but it is not the book for which architects have been waiting so long.

J. C. P.

Windsor Castle, by *Sir Owen Morshead.* 12 in. 58 pp. + (15) + 64 pls. text illus. Phaidon Press. 1951. £1 10*s.*

None is better qualified to write of the history of this 'most romantique castle', as Pepys so aptly called it, than Sir Owen Morshead, Librarian to the King, whose connection with the castle and the priceless documents in the Royal Collection extends over a quarter of a century.

Needless to say he has produced a book which, while it is couched in intimate, homely words, is none the less authoritative and scholarly. In fifty-four pages of text the story of Windsor is unfolded in historical sequence, with clear indications of the way in which the building has evolved. Although it is not primarily a book for architects, it is one that every student of architecture must peruse with pleasure, since, apart from its royal associations, the castle is closely connected with such men as William of Wykeham, Sir Christopher Wren, James Wyatt and his successor, Sir Jeffry Wyatville—to say nothing of Chaucer, who was Clerk of the Works for two years.

Sir Owen's text is worthily seconded by eighty admirable photographic illustrations, which contribute in no small degree to the attractiveness and interest of the volume.

This is a book which will take its place, if not as the standard work, at least as the most succinct and compact introduction to the castle and its history hitherto published.

C. G. E. B.

Baustoff lehre. Ein Handbuch, *&c.*, by *Eduard Jobst Siedler.* 2nd ed. 11¾ in. (iv) + 240 pp. incl. pls. text illus. Berlin: Tempelhof. 1951. 32DM.

This book provides a comprehensive and concise account of the origins and uses of building materials, comprehensive enough to be of very real use as a reference book for the practising architect, and concise enough to serve as a text book for the student. Much detailed information can easily be assimilated by following the general scheme of presentation, which is arranged in a way for which Siedler had an outstanding reputation as a Professor at the *Technische Hochschule* in Berlin. Step by step he progresses from the origins of the materials which determine their characteristics to practical application suited to their natural properties. Detailed tables, lists, diagrams and photographs add to the volume of information and to ease of understanding.

Roughly, the work is divided into main sections dealing with inorganic building materials (stone, clay, mineral products and metals), organic building materials (timber, fibres, etc.), fire resistance, sound and heat transmission and synthetic materials. Weights and measures are, of course, given in the decimal system, and very extensive reference is made to German Standards and Building Regulations. But as in substance these differ comparatively little from their British equivalents, the reader in this country should find little trouble in following them. Sources of supply are listed very fully, but with a bias towards a self-sufficient economy. These mainly comprise Central and Eastern Europe and Scandinavia.

A certain amount of war-time experience has been incorporated, and this provides bases for important comparisons. For instance, the last section dealing with synthetic materials, which has been revised for this second edition since the recent death of the author, should be of particular interest to the British reader. Here British experience with synthetic resins is discussed in the light of German experience. In most respects results have been similar; in certain cases the shortage of raw materials has evidently led to more extensive use of plastics in Germany during the war, e.g. in respect of plumbing with plastic pipes.

In its 231 pages the book contains in condensed form a lifetime's research by an expert on building materials. In this capacity Siedler trained a considerable number of German architects now in practice.

CARLLUDWIG FRANCK

Neutra, Residencias/Residences. *Museu De Arte De São Paulo, Brazil* [text by P. M. Bardi and R. Neutra]. 2nd ed. 9¼ in. 69 pp. incl. pls., some folding. São Paulo: Todtmann. 1951. Approx. 15*s.*

Looking through a book tracing the history of modern architecture from the early '20s to the present day, one has too often the disturbing feeling that the early experimental architecture, with its clean and sometimes beautiful simplicity, is gradually developing, not into a richer and less crude form, but into a fussy, tedious respectability. But if that book limits itself to describing the progress of Richard Neutra's work there need be no such disturbing feeling.

In his early days Neutra built in the new 'functional' style—and far less successfully than some of his contemporaries. But his work, looked at in chronological order, shows a gradual development from a hard-and-fast style to a form of natural building of such simplicity and directness that features and details seem to vanish. Underneath the floating roof slabs of his recent buildings there are no such distractions as windows, but only unbroken surfaces—either solid walls which appear to grow out of the surrounding landscape, or transparent walls made of sheets or strips of glass. These buildings of his really appear to belong to their sites. Neutra's work is not the form of architecture which lends itself to mass production where standard designs, often repeated, are placed on sites of varying characteristics. His private homes succeed where his housing schemes fail, for he is essentially the architect for the individual client.

The Brazilian booklet on Neutra wisely confines itself to his private houses. It shows eight houses built between 1936 and 1948; each is illustrated with a plan and four or five photographs. There is a preface, an article by Neutra and brief descriptions of the illustrations. Unfortunately, the photographs are not well reproduced, and each house is so meagrely illustrated that no clear impression of its real appearance and character is built up. If a book of this modest size were intended to introduce Neutra to Brazil, it would surely have been better if it had confined itself to describing one or two of his houses in greater detail—the desert house at Colorado, for example, or the magnificent little house at Santa Monica, built in 1948. As far as English readers are concerned, all the examples (except one) are far better illustrated in the English, French and U.S. magazines, or in the recent Swiss book devoted to Neutra's work by Bœsiger, which was reviewed in the April 1951 JOURNAL.

The captions in the Brazilian booklet are in two languages. Originally written in Italian, they have been translated into Portuguese, which in turn has been put into pidgin English. The introductory text, with English translation, contains in its middle a short, lucid description of Neutra's work sandwiched between pages of much tedious architectural jargon. Neutra, in the short article which follows, achieves what few architects achieve—he writes comprehensibly about his own work. His writing has some of the simplicity and directness of his designs.

PHILIP POWELL [*A*]

Men and Buildings, by *John Gloag.* 2nd ed. 8½ in. xxii + 271 pp. incl. pls. + 64 pls. text illus. Chantry Pubns. 1950. £1 15*s.*

John Gloag's books are many, and almost all of them are worth reading, particularly those in the field of architecture and design, in which he is an acute, pungent and respected critic. *Men and Buildings*, a lively and very personal account of the character of English architecture and of the men who helped to form it, was first written twenty years ago. It has undergone some pruning and revision, and in particular the new kind of architectural patronage has been recorded. There is an epilogue in the form of a short story, an appendix on architectural books, and a strikingly lavish provision of appropriate illustrations.

J. C. P.

The Council of Industrial Design. Fifth Annual Report [for the year] 1949-50. 8¼ in. pls. 1950. 1*s.* 6*d.*

The introduction to the Report briefly reviews the year's work and the progress made in stimulating public and industrial interest in standards of design. Other sections deal with the year's activities, including the Council's preparations for the Festival of Britain. It is worth recording that the 1951 Stock List, the illustrated index of well-designed products, shown on the South Bank under the title '1951 Design Review' to supplement the relatively small number of manufactured articles displayed, is to be kept in being.

Review of Construction and Materials

This section gives technical and general information. The following bodies deal with specialized branches of research and will willingly answer inquiries.
The Director, The Building Research Station, Garston, near Watford, Herts. Telephone: Garston 2246.
The Officer-in-charge, The Building Research Station Scottish Laboratory, Thorntonhall, near Glasgow. Telephone: Busby 1171.
The Director, The Forest Products Research Laboratory, Princes Risborough, Bucks. Telephone: Princes Risborough 101.
The Director, The British Standards Institution, 28 Victoria Street, Westminster, S.W.1. Telephone: Abbey 3333.
The Director, The Building Centre, 9 Conduit Street, W.1. Telephone: Mayfair 8641-46.
The Director, The Scottish Building Centre, 425-7 Sauchiehall Street, Glasgow, C.2. Telephone: Douglas 0372.

The Building Exhibition. The 1951 exhibition opens at Olympia on Wednesday 14 November and closes on Wednesday 28 November. A reference to it appears in the Editorial columns of this issue.

Ready-mixed Concrete. The Ministry of Works have issued an article, of which the Crown copyright is reserved, dealing with ready-mixed, or transit-mixed concrete: a subject that was surveyed by the British Building Productivity team when they visited America. The Ministry have had over 60 replies from producers and users in answer to questions on the advantages and disadvantages of ready-mixed as compared with site-mixed concrete, and the article is based on the information received.

The advantages and disadvantages may be summarized. Advantages: normally of higher and more uniform quality, except on large jobs where similar equipment is installed and control is of a high order; saving of labour, as a mixing team on the site is not wanted; increased speed; as no mixers or dumps are required there is a saving of floor space in the case of maintenance work or alterations in existing premises; avoidance of some of the difficulties connected with concreting in winter, or in unreliable weather. Disadvantages: delays in discharging trucks increase the cost of delivery, and may lead to premature setting; in congested city areas it may be difficult to maintain scheduled delivery times; on small jobs the last load may not be delivered in time for spreading to be completed before the normal closing hour; a firm road is needed right up to the discharge point, otherwise there will be extra handling and spreading costs; the possibility of the quality of the concrete being affected by inaccurate control of mixing water during transit, or by the addition on the site of water to make it more workable.

The Ministry say that it is not easy to find a basis for comparison of the economics of ready-mixed and site-mixed concrete, because of the number of factors involved; among them being the distance to be travelled and the extent to which the material can be discharged straight into position from the truck. Judging from the opinions received, ready-mixed concrete is likely to be dearer on many jobs, estimates of the difference vary from 5*s.* to 8*s.* a cubic yard, but the advantages of using it can offset its actual cost. If in small quantities, required intermittently within 10 miles of a loading station, it is cheaper. Travelling distance from a loading station should generally be less than 20 miles, but in some cases longer distances can usefully be considered.

Prestressed concrete. The Institution of Structural Engineers have published their First Report on Prestressed Concrete. The report contains a warning against dogmatism regarding many aspects of the subject, until research now in hand and contemplated is completed, and therefore the recommendations given in the report are those suggested by practical experience. It is intended to issue a revised report when the results of more experience and research are available.

The report deals with definitions and notations, materials, and design and construction, and two appendices give comprehensive notation for calculations, and notes on behaviour under load. There are three sets of diagrams showing notation for calculations, deflection curves of monolithic under-reinforced beams, and of over-reinforced beams.

The report is not for architects who are not mathematically and structural-mechanically minded, but for those who are—and for structural engineers—the report will be interesting and instructive. Copies may be had from the Institution, 11 Upper Belgrave Street, London, S.W.1, price 3*s.* 6*d.*, post free.

Gypsum plaster. It would be interesting to learn what the proportion is of architects who really enjoy specification writing; a most important part of an architect's work, but one that tends to be irksome, requiring a painstaking and plodding turn of mind that is not always joined to an artistic temperament. Consistency in phraseology is very desirable, and is achieved to some extent by the 'scissors and paste' experts, but anything that helps in that direction is to be welcomed. Messrs. Cafferata and Co. Ltd., of Newark-on-Trent, Nottinghamshire, have stepped into the doleful breach by issuing model specifications for the various uses of their 'Murite' gypsum plasters, of which there are five types, each designed for its own special purpose. The clauses are clearly worded and contain one or two hints that might perhaps be overlooked in the stress of modern office conditions.

Good Painting. Imperial Chemical Industries say that, if the work of amateurs is excluded, at least £80 million a year is the estimated expenditure on the professional painting of buildings in Britain, a figure which includes a probable £20 million for the paint itself. When paint from a reputable maker is specified there need be little fear of the quality of the material, but defects may arise to which the attention of the architect is drawn in no uncertain manner by the client, or, more probably, by Mrs. Client. Some defects may be due to more than one cause, and it is not easy to say which is the offender, but a booklet recently issued by the Paints Division of I.C.I. should help in diagnosis. Some 40 defects are mentioned, and if any reader thinks he knows all about defects in paintwork, will he ask himself to explain what cissing and cessing is, or are.

The booklet gives information also on the classes of paint, and types of surface to be painted, and in this section advice is given on that rather debatable point of the right type of paint to put on radiators. The booklet suggests that the ingredients of a paint will have little influence on convected heat but a great deal on heat transmitted by radiation. The colour and the surface finish—glossy, egg-shell or matt—do not, however, have much effect on radiation at normal radiator temperatures. Paints containing metallic powders, e.g., aluminium or bronze, do have an adverse effect which can be somewhat alleviated if they are lacquered. It is therefore suggested in the booklet that supply and circulation pipes should be given a metallic paint, to conserve heat, and that the radiators be given a gloss finish to allow maximum emission.

Although the booklet is meant for professional painters, others really interested may obtain a copy free. It is called *Good Painting of Buildings*, and can be had from any I.C.I. Sales Office, or from the I.C.I. Paints Division, Slough, Bucks.

Export. The present difficulties that beset us in building in Britain have perhaps turned our thoughts too much inwards, and it may be a welcome change to see what we are doing in the way of export, so far as building is concerned. In this the Export Group for the Constructional Industries are very much to the fore, since the Group were formed in 1940 as part of the export drive, their activities being sponsored by the Board of Trade. The object of the Group is to promote the carrying out, by British contractors, of civil engineering and public works outside the United Kingdom. Inquiries from overseas are brought to the notice of all United Kingdom contractors who operate abroad and are likely to be interested.

Messrs. Taylor, Woodrow Ltd. are

members of the Group, and their subsidiary 'Building Exports' in conjunction with the Arcon Group have produced a series of tropical structures, bearing in mind that although in many parts of the world satisfactory non-loadbearing walling materials are available, self-supporting roofs have always presented difficulties. The aim has therefore been to produce a permanent roof structure, light in weight, easy to erect and transport, and capable of being dismantled for re-erection elsewhere; giving protection from the heat of the sun, and being proof against attacks by insects.

The essential items of the construction are—tubular steel columns, set in concrete, supporting welded tubular steel roof trusses and purlins, with roof sheeting in corrugated asbestos cement, aluminium, or galvanized iron. The ceiling can be corrugated asbestos cement fixed to the purlins, or fibre-board sheets supported on light alloy extrusions. This basic structure has a 30-ft. span, and can run on as desired in 10-ft. bay units. Two standard length columns allow an eaves height up to 9 ft. and 15 ft. respectively. The standard eaves overhang is 6 ft., but 4 ft. 3 in. or 8 ft. 6 in. are available. Window and door units can be fixed to angles provided, and thus no skill is required for the erection of walls in local materials.

Another development is the Arcon Simple Purlin roof, designed for covering buildings in which the purlins can be supported on cross walls not exceeding 13 ft. spans centre to centre. Normally the roof allows a 2 ft. eaves overhang, but if required columns and rafter extension pieces can be provided, to give a 6-ft. verandah width. In each run the tubular steel purlins are screwed into each other through mild steel angle rafters. The roof sheeting can be corrugated asbestos cement sheetings, corrugated galvanized iron sheeting, or corrugated aluminium sheeting. Ceilings of building board can be hung from the purlins on aluminium alloy members which cover all cut edges of the building board.

Soleway flooring tiles. At the recent British Plastics exhibition there was shown a floor covering having some new features based on the latest American developments; it is called the Soleway flooring tile and has been produced by Messrs. Hornflowa Ltd. of Maryport, Cumberland, in conjunction with Messrs. Bakelite Ltd. The tiles are made with a shock-absorbing base of cork and polyvinyl chloride moulded to a top surface of hardened P.V.C., for good wear without loss of colour and pattern. It is claimed that the tiles are flexible and will not crack, will not shrink or creep, are water and rot proof, and resistant to oils, grease and most acids. They are supplied in 1 ft. squares, $\frac{1}{8}$ in. thick, and may be had in a variety of plain and marbled colours.

The Finch Organization. A note appeared in the July 1950 JOURNAL describing an exhibition of wallpaper and interior decoration in Messrs. Finch's showrooms; they have now begun a more permanent exhibition in the form of a standard catalogue library of their organization, volume I being devoted to stoves and ranges. After many pages giving illustrations and particulars of such products, the catalogue ends with useful technical information, some of which would not be too easy to find elsewhere. We have occasionally been asked how much water a normal bath requires: a question which led to arithmetical calculations ending in a result that did not seem probable: this catalogue gives the answer at once for various depths of water in a 5 ft. 6 in. Magna bath: for the most common depth of 7 in. the amount of water is 20 gallons.

Most of the technical information in the first volume is intended for the builder, the plumber, and the heating engineer; but Messrs. Finch propose to publish further volumes of this kind, covering all their activities in the building trade, so that gradually there will be formed a catalogue library for the benefit of architects, builders and others. Messrs. Finch's address is Belvedere Works, Barkingside, Essex.

Codes of Practice Recently Published.

CP. 327.201 (1951). *Broadcast reception, sound and television, by radio.* This Code forms part of a series dealing with telecommunications in buildings, and gives recommendations for good reception of sound broadcasts on the three wave bands, and of television broadcasts. Recommendations are also made regarding aerial and earthing systems, reduction of interference, and the provision of structural accommodation. Obtainable from the British Standards Institution, price 6*s.*, post free.

CP. 327.404/402.501 (1951). *Electrical fire alarms.* Contents: fire alarm systems, including manual call points and automatic fire detectors; choice of materials, appliances and components; recommendations on the design of various types of systems, methods of wiring and power supply, and on the necessary structural accommodation. Public fire alarm systems, alarms forming part of automatic sprinkler installations and manually or mechanically operated sounders are not included.

CP.113.102 (1951). *Arc welded construction.* It is intended, at some future date, to amalgamate this sub-Code with the head-Code 113, *The structural use of steel in buildings.* The document deals with the design, fabrication and erection of metal arc welded structural steelwork used in any part of a building, but does not deal with the welding of steel tubes. Recommendations are given for the design of welded joints, connections, plate girders, compression members and stanchion bases, the qualification and testing of welding operators; and examples are given of 'virtually flexible' welded joints. Price 4*s.*, post free.

British Standards Recently Published.

B.S. 644, Part 3, 1951. *Wood double-hung sash and case windows. Scottish type.* This Standard deals with types of wood double-hung sash and case windows in general use in Scotland, which are not covered by B.S. 644, Part 2, *Double-hung sash windows.* Three methods of counter-balancing are provided for, namely, type W, by cords or chains and weights; type S, by spiral balance devices in the sashes; type H, by spiral balance devices in the frames for use when the lower sash is required to open inwards for cleaning. Tables of notation for the three types are given, and also schedules of glass sizes and daylight glass areas. Detail drawings are included of the various parts of the windows. The Standard is published by the British Standards Institution, 24 Victoria Street, London, S.W.1, price 3*s.* net, post free.

B.S. 417 : 1951. *Galvanized mild steel cisterns, tanks and cylinders.* This Standard uses the following definitions: *cistern*, an open-top rectangular vessel; *tank*, a closed rectangular vessel used for storage of hot water; *cylinder*, a closed cylindrical vessel with domed ends, for storage of hot water. Tables give dimensions of cisterns, tanks and cylinders, which should be ordered by the B.S. number to avoid confusion between nominal and actual capacities. Obtainable from the British Standards Institution, price 2*s.* 6*d.*, post free.

B.S. 1755 : 1951. *Glossary of terms used in the plastics industry.* This is one of the documents in the series being prepared to cover glossaries of terms used in various industries, to provide greater uniformity and precision in the use of terms. The terms are grouped in sections to cover chemistry, industrial applications, constituents, properties, moulding processes, and other manufacturing processes. Price 6*s.*, post free.

B.S. 459. Part 4. 1951. *Matchboarded doors.* This Standard is intended to meet the demand for ledged and braced, and framed and braced doors, made from tongued and grooved matchboarding to a well-defined specification. Standard sizes and constructional requirements are given in detail. The quality of timber and the adhesive requirements are covered by reference to existing Standards. Price 2*s.*, post free.

B.S. 1737 : 1951. *Jointing materials and compounds.* This Standard is concerned with the composition, strength, sizes and conditions of test of compressed asbestos fibre, vulcanized fibre, plain rubber, rubber insertion, and corrugated metal joint rings. Price 5*s.*, post free.

B.S. 715 : 1951. *Sheet metal cylindrical flue pipes, fittings and accessories for gas fired appliances.* The specification has been brought up to date after extensive experience of the use of the 1936 edition, and applies to pipes and fittings having welded or folded seams and finished after fabrication by vitreous enamelling, electrodeposition, galvanizing, or any other suitable corrosion-resisting and heat-resisting finishes. Tables are included of dimensions of various pipes, bends, joints and connecting pieces; also appendices on test for quality of painted coatings, method of cutting vitreous enamelled flue pipe, and typical methods of assembly. Price 4*s.*, post free.

Practice Notes

Edited by Charles Woodward [*A*]

BUILDING LICENCES. In order that Members may be assisted as far as possible regarding items of work that should be included in an application for a building licence, the R.I.B.A. has had informal discussions with the Ministry of Works and has obtained the Ministry's opinion that the work listed below can in general be carried out without a building licence. Naturally, a licence would be needed for any actual building work carried out in association with and additional to the items in the list, provided that the actual building work can not be done under the free limit. It must be borne in mind that the Ministry's opinion is not in any way binding on a Court of Law, which is the only place where an authoritative ruling on the interpretation of Defence Regulation 56A can be given, but the Ministry's opinion is a helpful guide. In doubtful cases the Ministry's licensing Officers will always be ready to express an opinion.

Where the installation of an item is said not to require a licence the cost of the item does not need to be included in the application for the licence, and any repairs carried out to the item do not require a licence.

Work considered not to require a building licence

1. The installation of inter-communication telephones and similar instruments.
2. The installation of a free-standing motor generator set and battery for temporary shop lighting, which is itself not permanently fixed.
3. The laying of rubber or similar floor coverings on an existing floor using an underlay so that the covering is stuck to the underlay, which itself is not permanently fixed to the floor.
4. The laying of rubber or similar floor coverings loose or merely stuck down with a light adhesive so that it is easily removeable without damage to the floor or covering.
5. Crazy paving laid dry.
6. The installation of cooking appliances which are not built into the structure (e.g. electric or gas cooker, solid fuel heat storage cooker).
7. The installation of electric light fittings, including Neon tubes and portable electric clocks.
8. Free standing counters and show-cases within a building.
9. The carrying out of sign writing in a workshop not on a building site. (The cost of fixing the sign on the building would require a licence, as also sign writing actually executed on the building.)
10. The installation of ventilating equipment over cooking apparatus.
11. The installation of machinery not being used to provide a service to a building.
12. Cupboards which are not built in.
13. Garden work which does not involve fixed work of construction (e.g. the forming of earth banks or rockeries with loose stones).

Professional Fees. The fees of an architect, engineer or a surveyor acting as such in an advisory and/or supervisory capacity may be omitted from the cost shown on the application for the licence, providing it is made clear that this has been done. The licence will then be endorsed 'exclusive of any professional fees paid to any architect, surveyor or engineer acting as such in an advisory and/or supervisory capacity in connection with the work '.

This was referred to in the JOURNAL for July 1948 in *Practice Notes*, and will also be found in paragraph 7 of the *Notes for the Guidance of Applicants for Building Licences*, issued by the Ministry of Works. (P.I. 49. Fifth Edition (revised), November 1950.)

MINISTRY OF WORKS. Cement Prices. As from 3 September 1951 the Minister has authorized an increase of 1*s.* 6*d.* per ton throughout Great Britain and Northern Ireland of ordinary Portland and rapid hardening cement. The general price advance is combined with further minor and local regradings of prices. The additional premium for rapid hardening cement is advanced by 2*s.* per ton. In addition, certain price adjustments of ordinary Portland and rapid hardening cement, in some cases increases and in others decreases, are made in some areas of England and Wales (mainly in Northumberland, Cumberland, Norfolk, Flintshire and Carmarthenshire) to eliminate anomalies which have arisen in the price schedule over a period of years, due to the changes in the cost of distribution. (P.I.73. M.O.W. 96/51.)

Standard Metal Windows. As from 4 September 1951 the Minister has authorized an increase of 7½ per cent on the present list prices of standard metal windows made in accordance with B.S. 990. This increase is being applied by the British Metal Window Manufacturers' Association Ltd. provisionally as a general increase, pending the preparation of a new detailed price schedule. As a consequence of the general 7½ per cent increase in prices, the extra charge for the percentage addition in respect of rust-proofing is reduced from 25 per cent to 23¼ per cent. (P.I.73. M.O.W. 97/51.)

Sanitary Fireclay Ware. As from 12 September 1951 the prices for sinks, wash tubs, tub and sink sets, standard lavatories and overlaps, 45 lb. standard closets and drainage channels and foot baths have been increased by 2½ per cent (P.I.73. M.O.W. 99/51).

Glass Prices. The prices of polished plate glass are increased as from 1 October 1951. The new prices represent an average increase of 10 per cent on all plate glass, which is secured by applying varying increases to the different types and sizes. P.I.73 (M.O.W. 103/51.)

Fixing Fibre Building Board. The Ministry have now published Advisory Leaflet No.17 on the fixing of fibre building board. It is obtainable at H.M. Stationery Office, price 2*d.* net.

Steel Authorization. It has been announced that certain kinds of steel will require authorization for purchase after 3 December 1951. The method of obtaining such authorization both for projected buildings and for licensed building works now in progress is set out in Form M.O.W. 2065, a copy of which was received too late for publication in the last JOURNAL, although the date on which completed forms for work in progress were to be received by licensing officers was 22 October 1951. It is understood that copies of this form have been circulated to all registered builders, but not to architects. The Ministry of Works say that applications received after 22 October will of course be considered, but it can not be guaranteed that an I.S. Authorization in respect of this late application will be in the hands of the architect or builder by 3 December.

Form M.O.W. 2065 has, on one side, a form of application for steel authorization and on the other, the following explanatory notes:

BUILDING AND CIVIL ENGINEERING. APPLICATION FOR STEEL AUTHORIZATIONS FOR WORK CARRIED OUT UNDER A BUILDING LICENCE

1. From 3 December 1951 no one will be entitled to acquire certain forms of steel without the requisite authorization. The forms of steel thus controlled include all sections, reinforcing rod and mesh, plate and tube.
2. The arrangements for the distribution of steel for building purposes, and the issue of I.S. Authorizations, will be similar to those in operation up to May 1950. There will be arrangements enabling builders to buy small quantities of certain forms of steel without an I.S. Authorization. Details of these small quantities exemptions will be announced later.
3. This notice refers only to work carried out under a Building Licence (C.L. 1138 or 1161) granted by the Ministry of Works or by a Local Authority. Separate arrangements will be made by the authorities concerned for the steel requirements of other work, including work carried out for or under the authorization of a Government Department.

LICENSED BUILDING WORKS IN PROGRESS

4. Application should be made for an I.S. Authorization to obtain any supplies of steel needed from 3 December 1951 for each licensed work now in progress.
5. The application should be made by the holder of the Building Licence or by his agent on Form M.O.W. 2065 on the back of this notice.
6. One form is required for each job. Further copies of this notice and Form M.O.W. 2065 are obtainable from the Ministry of Works licensing officers.

7. When completed the form should be returned to the address from which the building licence was issued. It should be returned by 22 October 1951 at the latest.
8. The application should cover all the steel required for the job, whether as part of the main contract or done by sub-contractors, with the exception only of sheet steel, and electrical conduit and other steel required for electrical installations.
9. It is important that the estimate of tonnage should be accurately calculated and that it should not be phased for delivery earlier than it will be used.

FUTURE APPLICATIONS FOR BUILDING LICENCES

10. From the date of receiving this notice all new applications for building licences should state the steel required in the appropriate space on Form C.L. 1136a.

WORK CARRIED OUT UNDER THE FREE LIMIT

11. Builders requiring steel from 3 December 1951, which can not be obtained under the small quantities exemption arrangements, for work that is being carried out without licence under the free limit, should apply for an I.S. Authorization from a Ministry of Works licensing officer or, if it is for work on housing, to the Local Authority.

Ministry of Works,
14 September 1951.

MINISTRY OF LOCAL GOVERNMENT AND PLANNING. Reserve and Auxiliary Forces (Protection of Civil Interests) Act, 1951. Circular 57/51 dated 5 September 1951, addressed to local and other authorities, calls their attention to this Act, which received the Royal Assent on 1 August 1951. The object of the Act is to make statutory provision to ensure that the rights and interests of service men, and of their dependants, are not prejudiced by their absence from home on periods of service in H.M. Forces. The Circular deals with matters with which local authorities are concerned in administering the Act, and it is obtainable at H.M. Stationery Office, price 6*d.*

Drafting of Planning Permissions. Circular 58/51 dated 10 September 1951, addressed to local authorities in England and Wales, gives guidance to local planning authorities on the drafting of planning permissions in a Memorandum attached to the Circular. The aim in preparing the Memorandum has been simply to draw attention to some of the difficulties which have come to the Minister's notice, and to indicate his views on various points of general interest which have arisen over the past three years. It is hoped that authorities will find it of assistance when framing planning permissions and that it will help to a better understanding of the Minister's practice on appeals.

The Circular and Memorandum are obtainable from H.M. Stationery Office, price 4*d.* net., under the above number and date, the title being *The Drafting of Planning Permissions.*

The Memorandum should be of assistance to all those making applications for planning permission and in the consideration of the terms of the permission when it is issued. It may well be that a better understanding between the local planning authority and the applicant could be reached if the guidance is followed on both sides. An application made and dealt with in accordance with the Minister's views would, it is thought, avoid appeals which, in some cases, should not have been necessary.

The following paragraphs indicate the kind of guidance given by the Ministry, and Members are recommended to obtain a copy of the Memorandum so that they may have the views of the Ministry complete.

'It is suggested that permissions should be so framed that persons other than the local planning authority and the applicant may be able to appreciate exactly what has been authorized and to assess its effect on the value of the land. The permission is not the personal property of the applicant, and unless otherwise provided it runs with the land. It concerns a prospective purchaser or tenant, and is required by the Central Land Board for assessing development charge. It may have to be interpreted by the Courts . . .'

'The permission should be adequately described, as applicants are not always expert in planning. The proposed development may be wrongly described or the description may be incomplete. Where the application submitted is obscure it is advisable for the local planning authority to ascertain from the applicant precisely what is intended, have the application altered where necessary, and then frame the permission in appropriate terms. The statutory register of applications will then be readily intelligible to all who consult it . . .'

'Permissions may be expressed either in terms of the use to be carried on or in terms of the relevant class in the Use Classes Order 1950, or, if the applicant desires it, permission may be granted in a form which allows free interchange between uses in two or more classes . . .'

'It is stressed that care must be taken, when granting permission on an outline application, to provide specifically for any matters which it is desired to reserve for subsequent approval. An unqualified permission to erect a building would almost always have to be construed as including permission for any other development (e.g. the formation of an access) which was essential to its use . . .'

'The grant of permission generally enures for the benefit of the land, and of all persons for the time being interested in it. But exceptionally, it may be in the interests of good planning to confine the benefit of a permission to a particular developer as recognized in section 18 (4) of the Act by the words "except as may be otherwise provided by the permission". Planning is, however, concerned with the use of land rather than with the persons who use it, and it is strongly emphasized that permissions restricted in this way—personal permissions as they are sometimes called—are only justified in very special circumstances. The use of such a permission should not be contemplated unless it is quite clear, first, that the reason for imposing the restriction is a planning reason, and, second, that there is no other means by which the desired result can be obtained.' (The Memorandum elaborates this point and gives a suggested form of permission which illustrates the principles involved.)

'The process of deciding what conditions (if any) are appropriate to attach to a permission and then expressing them in suitable terms gives rise to most of the difficulties met with in the framing of planning permissions. It is obviously preferable that wherever possible permission should be granted with the minimum of qualification; the attempt to guard against every possible contingency and regulate every trifle is not only a sign of fussy and over-anxious administration, but frequently defeats its own ends. Conditions ought, therefore, only to be imposed where there is some definite and important end to be secured. The automatic attachment of conditions to every permission should be avoided, since conditions imposed automatically are bound to be either superfluous or inappropriate in many cases, and this criticism applies with particular force to standard conditions which are printed on the form of permission. It is not suggested that local planning authorities should not standardize the wording of different types of conditions for use as appropriate . . .'

'Conditions to be satisfactory must be capable of enforcement and should be clear and precise in expression, so that the Council will be able to take effective action if they are not observed. Vague expressions such as "maintain the land in a tidy state" and "so as not to cause annoyance to nearby residents" have obvious weaknesses. Conditions should not be made subject to qualifications, such as "if called upon to do so" or "if the growth of traffic makes it desirable", which leave the basic question of whether the condition is to apply to be settled at a later date. The extent of what can be required by an enforcement notice is defined by section 23 (2) of the Act, and it will often be found useful to test the worth of a condition by examining it in the light of this sub-section. Conditions which have no relevance to planning have no place in a planning permission; planning powers ought not to be used as a universal longstop when other powers are not available . . .'

Houseboat Moorings not Development. Applications for six moorings for houseboats on the Basingstoke Canal were rejected by the Chertsey Urban Council on the ground that the development would be inconvenient to householders. On appeal to the Minister a local inquiry was held and the Minister found that 'the mooring of houseboats can not be deemed to involve development, and consequently no permission is required'.

Membership Lists

ELECTION: 9 OCTOBER 1951

The following candidates for membership were elected on 9 October 1951.

AS FELLOWS (15)

Ford: George [*A* 1930].
Gooding: John Francis Rowland [*A* 1936], Birmingham.
Hill: Eric Davy [*A* 1942], Nairobi.
Johnson: Victor Lloyd [*A* 1934].
Lloyd: Kenneth Alfred [*A* 1938], Birmingham.
Manickam: Thambuswamy Joseph, B.Sc., B.E. (Mysore), B.Arch., Dip.C.D. (Liverpool), A.M.T.P.I. [*A* 1940], New Delhi.
Meiring: Prof. Adriaan Louw, B.A. (C.T.), B.Arch. (L'pool) [*A* 1934], Pretoria.
Miller: George Alan Gerard, A.M.T.P.I. [*A* 1939], Birmingham.
Parker: Cecil James [*A* 1928], Calcutta.
Robinson: Herbert Fitzroy, B.A. (Arch.) (Lond.) [*A* 1936].
Secrett: Michael John Frederick [*A* 1946].
Wakelin: Richard Newton [*A* 1930],

and the following Licentiates who are qualified under Section IV, Clause 4 (c) (ii) of the Supplemental Charter of 1925:

Anns: Kenneth, M.C.
Herring: George Howard, Harpenden.
Slater: Thomas, Liverpool.

AS ASSOCIATES (98)

Abramson: Sam.
Andrews: Guy Hamilton, Johannesburg.
Austin: Thomas John, Cuckfield.
Baart: Leonard William, B.Arch. (Rand), Bulawayo.
Balfour-Cunningham: Gordon, B.Arch. (Rand), Natal.
Barlow: Marcus Robert, Brighton, Victoria, Australia.
Beese: Ivor Wyndham, Oxford.
Beevis: James Herbert, Holyport.
Broadhurst: Kenneth, Bromley, Kent.
Brown: Albert Dawson, Sydney.
Bucholc: Zdzislaw Stanislaw.
Carmichael: John, Motherwell.
Chamberlain: Patrick Edward, Dip.Arch. (The Polytechnic), High Wycombe.
Clare: Richard Henry.
Clarke: Lindsey James, B.Arch. (Sydney), Jannali, N.S.W., Australia.
Clarke: William Adin, Dip.Arch. (Nottm.), Mansfield.
Connell: Gordon Geoffrey, Chelmsford.
Crowder: Peter Neville Ryder, Durban.
Crowe: George Raymond, Christchurch, New Zealand.
Curry: William Everard, Hull.
D'Almeida: Philip Marques, Kuala Lumpur.
Dixon: Frank Wilson Chatham, Croydon, Victoria, Australia.
Dubash: Homi Rustomji.
Ellis: Keith Harry Newton, Peterborough.
Entwisle: Norman, Farnworth.
Epstein: Henrik, Dr., Sydney.
Fenner: Walter Leslie, Dip.Arch. (The Polytechnic).
Ferin: Harold Robert Stuart.
Forrest: Peter William Charles, Dip.Arch. (The Polytechnic), Peterborough.
Furlong: Richard Albert, Cardiff.
Graham: John Kenneth, Belfast.
Green: Donald, Dip.Arch. (Cardiff), Barry, Glam.
Haig: Iain Dewar, D.A. (Edin.), Edinburgh.
Halford: Frederick Samuel, M.C., Bristol.
Hemingway: Peter George, Sheerness.
Hickmore: Edward Stanley, Dip.Arch. (The Polytechnic).
Hinton: Denys James.
Hobart: Frederick Arthur, Dip.Arch. (The Polytechnic).
Hodge: Alexander Munro, Dip.Arch. (Rand), Johannesburg.
Howarth: Stephen, Gateshead.
Hunter: Gerald Oliver, Dip.Arch. (The Polytechnic), Hove.
Hunter: Noel William.
Hyde: Dennis Arthur, Dip.Arch. (The Polytechnic).
Irvine: Alan Montgomery, Dip.Arch. (The Polytechnic).
Jackson: John, Salisbury, Southern Rhodesia.
Jacobs: Anthony David, Dip.Arch. (Leics.), Loughborough.
Jolley: Frederick Charles Edward, Kettering.
Jones: Jill (Mrs.), Dip.Arch. (The Polytechnic).
Jones: Richard Gemmill, Aberdeen.
Kemp: John Marc, B.A. (Cantab), B.Arch. (C.T.), Cape Town.
Leach: Peter Edmond, Sevenoaks.
Leeson: Brian, Dip.Arch. (Dunelm), Nairobi.
Line: Donald Frederick, B.Arch. (Melbourne).
Linscott: Anthony Herbert Michael, Dip.Arch. (Manchester), Burnley.
McCarthy: Robert Maxwell.
Millar: Ruth Mary (Mrs.).
Miller: Arthur John, B.Arch. (L'pool), Liverpool.
Moffat: Maurice Joseph, Christchurch, New Zealand.
Mold: Edward John.
Murwill: Ronald Joseph Patrick, Dip.Arch. (The Polytechnic).
Nicholas: Raymond John, B.Arch. (Rand), Orlando, Transvaal.
Nicoll: Alastair Reid, Perth.
Pache: Maurice Edwin, Thornton Heath.
Prabhawalkar: Anant Ramchandra.
Raw: John Alfred, Gloucester.
Richmond: Martin Charles Douglas.
Riley: Joan Marian (Miss), Dip.Arch. (Nottm.), Nottingham.
Roberts: Keith Hadfield, Huddersfield.
Rowswell: Donald, Dip.Arch. (The Polytechnic), West Wickham.
Salmon: Ronald David.
Shearer: Alan Frank.
Smith: Maurice Keith, B.Arch. (Auck. N.Z.), Hamilton, New Zealand.
Snodgrass: James Robert, B.Arch. (Rand), Johannesburg.
Stafford: Leonard John Alfred.
Stanton: Brian James, Stockport.
Stott: Geoffrey Harold, Melbourne.
Stott: Marcia Elizabeth (Mrs.), Kew, Australia.
Struthers: John Robertson, Glasgow.
Swift: Ruth Ellingworth (Miss), Dip.Arch. (The Polytechnic), Coventry.
Symon: Sidney Harold, Port Elizabeth.
Taylor: John Stanley Bennett, Johannesburg.
Taylor: Shona (Mrs.), Johannesburg.
Thomas: Eleanor Barbara Jane (Miss), Purley.
Thompson: Arthur Ernest, Dip.Arch. (The Polytechnic), Cheam.
Timothy: Cyril Frank, Dip.Arch. (The Polytechnic).
Tross: Emmanuel Monik, Dip.Arch. (C.T.), Cape Town.
Ussner: Wilfred Richard.
Vadgama: Laxmidas Chaku, Jinja, Uganda.
Vanstone: Alan, Newport, Mon.
Ward: Harold Clifford, Leicester.
Warner: John Ernest, Ilford.
Warren: William Geoffrey, Wellington, New Zealand.
Whittenbury: June (Miss), Manchester.
Wilkinson, John, Preston.
Williams: Richard Owen Gwynfor, Dip.Arch. (The Polytechnic), Warlingham.
Williamson: John Frederick, Blackpool.
Williamson: Norman Bruce, Melbourne.
Wilson: George Dudley, B.Arch. (Sydney), Engadine, N.S.W., Australia.

AS LICENTIATE (1)

Paton: Alfred George, Accra.

ELECTION: 5 FEBRUARY 1952

An election of candidates for membership will take place on 5 February 1952. The names and addresses of the overseas candidates, with the names of their proposers, are herewith published for the information of members. Notice of any objection or any other communication respecting them must be sent to the Secretary, R.I.B.A. not later than Saturday 19 January 1952.

The names following the applicant's address are those of his proposers.

AS ASSOCIATES (28)

Albert: Kenneth Leo (Passed a qualifying Exam. approved by the N.Z.I.A.), 306 Hillsborough Road, Auckland, S.3, New Zealand. M. K. Draffin, H. L. Massey, A. C. Light.

Allen: Lindsay, B.Arch. (Sydney) (Passed a qualifying Exam. approved by the R.A.I.A.), 14 Waratah Street, North Strathfield, Sydney, Australia. Prof. H. I. Ashworth, Prof. A. S. Hook, E. L. Thompson.

Allingham: John David (Passed a qualifying Exam. approved by the N.Z.I.A.), Strand Chambers, 19 Princes Street, Dunedin, C.1, New Zealand. J. H. White and the President and Hon. Secretary of the N.Z.I.A. under Bye-law 3 (*a*).

Ball: Margaret Ann (Miss), B.Arch. (Sydney) (Passed a qualifying Exam. approved by the R.A.I.A.), Wahroonga Avenue, Wahroonga, N.S.W., Australia. Prof. H. I. Ashworth, Prof. Denis Winston, Prof. A. S. Hook.

Ballantine: Ian James (Passed a qualifying Exam. approved by the I.S.A.A.), c/o Klipfontein Organic Products Corporation, P.O. Chloorkop, Via Johannesburg, S. Africa. Applying for nomination by the Council under Bye-law 3 (*d*).

Bufe: Leon Johan, B.Arch. (Rand) (Passed a qualifying Exam. approved by the I.S.A.A.), 795 Government Avenue, Arcadia, Pretoria, S. Africa. Applying for nomination by the Council under Bye-law 3 (*d*).

Christos: George Athanasopoulos (Passed a qualifying Exam. approved by the I.S.A.A.), 11 Roberts Avenue, Kensington, Johannesburg, S. Africa. Applying for nomination under Bye-law 3 (*d*).

Clark: Barry James (Passed a qualifying Exam. approved by the I.S.A.A.), 417 Clark Road, Durban, S. Africa. R. C. Rinaldi, A. S. Furner, K. E. F. Gardiner.

Cooper: Vivian Hutchinson, Dip.Arch. (Cardiff) (Welsh Sch. of Arch.: The Tech. Coll., Cardiff), c/o Miss U. M. George, Birgh Hill, Port Antonio, Jamaica, B.W.I. Lewis John, T. A. Lloyd, Harry Teather.

Cutter: Clayton George, B.Arch. (N.Z.) (Passed a qualifying Exam. approved by the N.Z.I.A.), 95 St. Stephens Avenue, Parnell, Auckland, New Zealand. A. C. Light, H. L. Massey, W. H. Gummer.

Eliasov: Walter Wolf, B.Arch. (Rand) (Passed a qualifying Exam. approved by the I.S.A.A.), Beaconsfield Chambers, Beaconsfield Avenue, P.O. Box 546, Vereeniging, S. Africa. Applying for nomination by the Council under Bye-law 3 (*d*).

Feldman: Mannie (Passed a qualifying Exam. approved by the I.S.A.A.), Cor.Bird and Anderson Avs., Northcliff, Johannesburg, S. Africa. Applying for nomination by the Council under Bye-law 3 (*d*).

Gauci: Joseph, B.A. (Arch.) (Manchester) (Victoria Univ., Manchester: Sch. of Arch.), 4 Rue Adib (P.O. Box 702), Alexandria, Egypt. Prof. R. A. Cordingley, F. L. Halliday, J. P. Nunn.

Harvey: Kenneth Gordon (Passed a qualifying Exam. approved by the I.S.A.A.), 14 Stewart Avenue, Bulawayo, Southern Rhodesia. R. C. Rinaldi, A. S. Furner, K. E. F. Gardiner.

Hayward: John Sandford (Arch. Assoc. (London): Sch. of Arch.), Messrs. Swan and Maclaren, P.O. Box 569, Singapore. Henry Elder, A. R. F. Anderson, Arthur Korn.

Johns: Rowland Walden (Passed a qualifying Exam. approved by the R.A.I.A.), 5 Ashbourne Avenue, Lower Mitcham, South Australia. L. Laybourne-Smith, J. D. Cheesman, P. R. Claridge.

Joshi: Parashuram Janardan [Final], 18 Fort View, Sion Housing Society, Sion, Bombay, India. A. R. Borrett, H. F. Hoar and applying for nomination by the Council under Bye-law 3 (*d*).

Lincoln: George Albert France [Special Final], P.O. Box 1007, Salisbury, Southern Rhodesia. C. A. Knight, F. A. Jaffray, W. D'A. Cathcart.

McArthur: John Allan (Passed a qualifying Exam. approved by the N.Z.I.A.), 66 Rongotai Terrace, Wellington, E.3, New Zealand. Prof. A. C. Light and the President and Hon. Secretary of the N.Z.I.A. under Bye-law 3 (*a*).

Mortlock: Harold Bryce, B.Arch. (Sydney) (Passed a qualifying Exam. approved by the R.A.I.A.), 5 Vernon Street, Cammeray, N.S.W., Australia. Prof. H. I. Ashworth, E. L. Thompson, J. C. Fowell.

Norwood: Robert David (Passed a qualifying Exam. approved by the N.Z.I.A.), 41 View Road, Mt. Eden, Auckland, New Zealand. Prof. A. C. Light, H. L. Massey and the President and Hon. Secretary of the N.Z.I.A. under Bye-law 3 (*a*).

Oxlad: Ernest Walter Norman (Passed a qualifying Exam. approved by the R.A.I.A.), Raff Avenue, Holland Park, Brisbane, Queensland, Australia. J. C. Fowell, F. E. Towndrow, W. R. Richardson.

Prew: William Sidney Augustus [*L*] [Special Final], Headquarters, Public Works Department, Lagos, Nigeria. F. C. Haslam, Thomas Scott, C. G. Toy.

Rees: Norman Richard, B.Arch. (Sydney) (Passed a qualifying Exam. approved by the R.A.I.A.), 15 Simla Road, Denistone, N.S.W., Australia. E. L. Thompson, Prof. H. I. Ashworth, Prof. A. S. Hook.

Robinson: Daniel Hildyard, B.Arch. (Rand) (Passed a qualifying Exam. approved by the I.S.A.A.), 86 Westcliffe Drive, Johannesburg, S. Africa. J. A. Hoogterp and applying for nomination by the Council under Bye-law 3 (*d*).

Roux: Dennis Woutersen, B.Arch. (Rand) (Passed a qualifying Exam. approved by the I.S.A.A.), P.O. Box 7, Robinson, Randfontein, Transvaal, S. Africa. Applying for nomination by the Council under Bye-law 3 (*d*).

Winterbottom: Kevin Stephen (Passed a qualifying Exam. approved by the R.A.I.A.), 62 River Road, Lane Cove, N.S.W., Australia. Prof. H. I. Ashworth, Prof. A. S. Hook, E. L. Thompson.

Woram: Desmond Victor, B.Arch. (C.T.) (Passed a qualifying Exam. approved by the I.S.A.A.), 4 Rowland Square, Salisbury, Southern Rhodesia. Applying for nomination by the Council under Bye-law 3 (*d*).

Obituaries

Frank Brookhouse Dunkerley [*Retd. F*], Past President of the Manchester Society of Architects and a former member of Council, died on 24 September at the age of 82. Mr. W. Cecil Young [*F*], President of the Manchester Society of Architects, writes the following appreciation:

'Frank Brookhouse Dunkerley, an old Marlburian, commenced his training as an architect in the office of John Douglas at Chester. In 1895 he made the 'Grand Tour' and returned with sketches which no student would be ashamed of acknowledging.

'It is not known when he started practising on his own account, but drawings from an address in Duchy Chambers, Clarence Street, Manchester, are dated 1900. Drawings for a school at Heath Street, Cheetham Hill, are in existence dated December 1902; the architects being Waddington, Son and Dunkerley, of 17 St. Ann's Square, Manchester. In 1906 he was preparing designs for Bowdon Assembly Rooms under his own name, and at the St. Ann's Square address; the planning is excellent, and after forty-five years the building is still in full use and eminently suited for its purpose.

'The first house which he built for his own occupation was "Graithwaite", at Hale in Cheshire, and it was illustrated in the BRITISH ARCHITECT on 8 October 1909 with sketches by Raffles Davison. The description in the letterpress is as follows: "This building is now grey and toned very much like an old one, and it has been built up in a very similar way out of good solid oak both in its outside timbers and the interior panelling." This description shows that the building had been built some time before the sketches were made. It also shows the influence of his early traditional training as a pupil in Chester.

'A later issue of the BRITISH ARCHITECT dated 29 October 1909 illustrates a house in the Lake District then approaching completion, with drawings again by Raffles Davison. Dunkerley's sensitive nature accepted the local materials which were close at hand. He produced an eminently liveable house, suited to the conditions then prevailing. He had learnt that a house without a garden was useless, and he produced a composition that in no way spoilt a magnificent site. It is evident from these early works that he was one of that group of traditionalists such as Voysey, Baillie-Scott and Dawber, not to mention Lutyens, who dealt with each problem sympathetically with its surroundings and made such good use of local materials. He was a personal friend of Dawber and Raffles Davison.

'Dunkerley served as president of the Manchester Society of Architects during those difficult years of 1914 to 1916, and it was about this time that Isaac Taylor joined offices with him. After the first war I was privileged to be associated with both Isaac Taylor and F. B. Dunkerley. We shared offices at 19 Chapel Walks, Manchester, and worked together on a number of schemes, though there was never an actual partnership.

'The design submitted by F. B. Dunkerley for the Marlborough College War Memorial was placed second, and was illustrated in the BUILDER in April 1921. (The winning design, by W. G. Newton, was eventually carried out.) Between 1923 and 1929 the Belmont Homes for the Boys' and Girls' Refuges were erected under Dunkerley's guiding hand.

'In 1923 he designed the Green Bend at Bowdon, Cheshire; a house for his own occupation on a delightful site overlooking the River Bollin in the valley below. This house was illustrated in COUNTRY LIFE, and it shows the work of a mature architect; a simple brick building covered with Delabole slates, set in a very natural garden, well wooded on the south side, with vistas cut through the trees into the distant countryside beyond.

'Dunkerley was an active member of the C.P.R.E., freely giving his time in efforts to prevent the spoliation of the countryside. He became so much engrossed with public duties, which are far too numerous to mention here, that he failed to make full use of his natural talent for architecture, which was regrettable. He enriched any cause with which he was associated.'

Edmund Frederick Ronald Sample [*F*] died on 4 May, aged 63.

Mr. Sample spent a large part of his working life in Hong Kong, going out there as a junior in 1920 and rising to be senior partner in his firm. In 1933 Mr. Sample returned to England and settled in Canterbury. From 1933 to 1945 he did not practise, but from 1945 onwards did a certain amount of war damage repair work.

Frederick John Bayman Watkins [*A*]. It is much regretted that in the obituary notice of Mr. Watkins published in the August JOURNAL his age was incorrectly given as 55. Mr. Watkins was in fact 44.

Claude St. John Garle Miller [*A*], died 26 June, aged 69.

He originally trained as a painter in Paris, at the Slade and the Royal College of Art. But he then became interested in architecture, and entered the Architectural Association school in 1919. He became an Associate in 1922, and set up in practice in 1926, carrying out various works of interior decoration and domestic work in London and the Home Counties. In 1924 he was appointed to the teaching staff of the A.A. school, and remained until 1939, when he left to become Head of the Department of Architecture at the Brighton College of Art and Crafts. During the period at the Architectural Association school he also taught in the evening classes of the Northern Polytechnic.

Mr. Eric R. Jarrett [*A*], lately of the Architectural Association school staff, writes:

'A great number of architects, and particularly those with experience of architectural education, will learn with sorrow of the death of Claude Miller. He devoted his life to the teaching of architecture and none will feel his loss more keenly than those who at the end of the first world war were his fellow students at the A.A. school and later his colleagues on the staff of the school.

'Others will be more competent to deal with his recent teaching activities; it is as a fellow member of the A.A. school staff that I recall with pleasure his likeable personality and the esteem in which he was held by staff and students. In addition to his teaching ability he possessed discriminating taste and a sense of values. His studies as an art student gave him a wide sympathy with modern painting without distracting from his appreciation of the old, while from his Paris days he acquired a love for everything French from architecture and Cezanne to the stage and cooking. This wide range of appreciation provided a cultural background which was a valuable asset in a master in the lower years where young students are not always able to distinguish between substance and shadow or to tell gold from pinchbeck.

and are sometimes thrown off their balance in pursuit of things new and strange.

'Miller was always a personality. A big man, he could on occasion look as imposing as a judge, but cheerfulness would keep breaking through; and if he heard or possibly purveyed something which appealed to his sense of humour his Johnsonian frame would shake with chuckles of amusement. Catholic in his tastes, what he liked had to be good of its kind. A fine piece of Louis XV furniture, a Paul Nash, or Lily Morris singing at the Metropolitan in the Edgware Road; each would move him to enthusiasm for the artistry that produced them—and what is more he could say why they appealed to him. He was a conscientious teacher, had good control of his students, who all liked him, and was always an agreeable companion. All who knew him will remember him with affection.'

Jacob Stephenson Stout, M.T.P.I. [*L*] died on 13 June, aged 75.

Mr. Stout had an extensive private practice in West Cumberland. He was most interested in housing, and designed a number of schemes in that region between 1920 and 1930. He was also responsible for various laundries in Carlisle and Barrow-on-Furness, for churches in Carlisle and elsewhere, and for shops and offices in Whitehaven.

Notes and Notices

NOTICES

Inaugural General Meeting, Tuesday 6 November 1951 at 6 p.m.

The Inaugural General Meeting of the Session 1951-52 will be held on Tuesday 6 November 1951 at 6 p.m. for the following purposes:

To read the Minutes of the Ninth General Meeting of the Session 1950-51 held on 19 June 1951.

Mr. A. Graham Henderson, A.R.S.A., President, to deliver his Inaugural Address of the Session.

To present the London Architecture Bronze Medal 1950 to Messrs. A. J. P. Powell and J. H. Moya [*AA*] for the Westminster City Council's Housing Scheme at Pimlico.

To present the R.I.B.A. Bronze Architecture Medal for New South Wales 1947 to Mr. Brian O'Rorke, A.R.A. [*F*], for the Orient Line Building, Sydney, designed in association with Messrs. Fowell, McConnel and Mansfield [*FF*].
(Light refreshments will be provided before the meeting.)

Lecture, Tuesday 27 November 1951 at 6 p.m.

On Tuesday 27 November 1951 at 6 p.m. Mr. Eric L. Bird, M.B.E., M.C. [*A*], will read a paper on 'Fire Protection: The Architect's Responsibility.'
(Light refreshments will be provided before the meeting.)

R.I.B.A. Kalendar 1951-52

In the new issue of the Kalendar the first Christian name of Mr. J. C. Marston [*A*] is incorrectly shown as John. The entry should read 'Marston: James Clifford'.

In the case of Mr. P. D. Windle [*A*] two entries appear The first of these (Ainthorpe House) is correct, the printers having omitted to delete the old entry when making the correction.

In the entry for Mr. Raymond George Turner [*A*] the word 'Nimrod', which is the name of his house, has been printed in bold type and appears to be a third Christian name.

British Architects' Conference 1952. The British Architects' Conference next year will be held in Edinburgh from 25 to 28 June at the invitation of the Royal Incorporation of Architects in Scotland.

In view of the great demand on hotel accommodation in Edinburgh, members who intend to be present at the Conference should make their reservations at the earliest possible moment and in any case not later than January 1952. *The bookings must be made through the Secretary, R.I.A.S., 15 Rutland Square, Edinburgh*, 1, and members should communicate with him, giving details and the hotel at which they desire to stay, together with second and third preferences.

The Conference Committee have arranged provisional bookings as shown in the following table:

Architects' Conference, Edinburgh, 25 to 28 June. Hotel accommodation provisionally booked

HOTELS	ROOMS			TARIFF	
	Double beds	Twin beds	Single beds	Bed and breakfast (each)	Bed, breakfast and dinner (each)
(*a*) Braid Hills Hotel	2	—	4	—	32 6
(*b*) Bruntsfield Hotel	5	10	10	21 –	30 –
Caledonian Hotel	5	5	10	35 –	—
do. with private bathrooms	5	5	—	42 6	—
Cockburn Hotel	4	4	8	17 6	26 –
Dean Hotel	2	5	2	17 6	25/–
George Hotel	8	15	10	25 –	—
(*c*) Green's Hotel	2	10	4	17 6	—
(*d*) Iona Private Hotel	1	4	3	20 –	26/–
Maitland Hotel	6	4	2	—	31 –
North British Hotel	20	20	20	28/6	—
Pirie's Hotel	4	8	1	12/6	17 6
Queen's Hotel	—	4	2	21/–	27 –
Roxburghe Hotel	2	6	4	23 6	31 –
Royal British Hotel	5	5	—	21 –	—
Royal Circus Hotel	—	8	—	15 6	20 6
Rutland Hotel	1	5	1	18 6	24 –
St. Andrew Hotel	6	6	3	18/–	—

NOTE:

(1) It will be appreciated that the foregoing prices are minimum prices, which may be increased by the time of the Conference.

(2) All these hotels are within ten minutes, either walking or tramcar, from the Conference Headquarters, with the exception of (*a*) which is 20 minutes by tramcar, (*b*), (*c*) and (*d*) which are 15 minutes by tramcar.

(3) Members desiring to take up rooms are requested to communicate with the Secretary, Royal Incorporation of Architects in Scotland, 15 Rutland Square, Edinburgh, 1 as soon as possible, indicating which hotel they desire, with second and third preferences.

BOARD OF ARCHITECTURAL EDUCATION

R.I.B.A. Examination for the Office of Building Surveyor under Local Authorities

At the R.I.B.A. Examination for the Office of Building Surveyor under Local Authorities held on 3, 4 and 5 October 1951, eleven candidates presented themselves, and the following were successful: Mr. Frank Berry, Mr. Stanley R. Cardwell, Mr. Stanley H. Coe, Mr. Norman Harvey, Mr. Frank Robinson, Mr. John G. Stean.

COMPETITIONS

City of London (Golden Lane) Housing Scheme

The Corporation of London invites architects to submit designs in competition for a new housing scheme in Golden Lane, E.C.
Assessor: Mr. Donald H. McMorran [*F*].
Premiums: 1,000 gns., 700 gns., 500 gns., 300 gns.
Last day for submitting designs: 31 January 1952.
Conditions may be obtained on application to the Town Clerk, Corporation of London, 55-61 Moorgate, E.C.2.
Deposit 2 gns.

Technical College, Poole

The Dorset County Council invite architects to submit designs in competition for a College of Further Education at Poole, Dorset.
Assessors: Mr. Julian Leathart [*F*] (nominated by the R.I.B.A.), Mr. S. A. W. Johnson-Marshall, B.Arch. [*A*] (Chief Architect, Ministry of Education), Mr. H. E. Matthews [*F*] (County Architect, Dorset), Mr. J. Haynes, M.A. (County Education Officer, Dorset), Mr. H. J. Shelley, O.B.E. (Chief Inspector, Ministry of Education).
Premiums: £1,000, £500, £300.
Last day for submitting designs: 31 October 1951.
Conditions may be obtained on application to the County Education Officer, County Hall, Dorchester, Dorset.
Deposit £1 1*s.* made payable to the County Treasurer.

COMPETITION RESULT

Group of Bus Shelters, York

1. A. A. Wood [*Student*].
2. Harold E. Green [*A*] and Miss Pauline A. Nottingham [*A*].

ALLIED SOCIETIES

Changes of Officers and Addresses

Institute of Southern Rhodesian Architects. President, Mr. L. Ayers, B.Arch.(Rand) [*A*], 201-6 Bradlows Buildings, Abercorn Street, Bulawayo, S. Rhodesia.

GENERAL NOTES

Correction. In last month's issue of the JOURNAL the article on the monument to Lady Isham was headed *Edwin* Stanton's Monument; it should have been *Edward* Stanton's Monument. The error is regretted.

Decoration for a Member
Member friends of Major W. R. Roydon Cooper [*F*], of Petter, Warren and Roydon Cooper, Yeovil, will be pleased to know that he has been awarded the Territorial Efficiency Decoration. Notification of the award was published in the London Gazette Supplement, No. 39334, dated 18 September.

Harvard University Scholarship in Landscape Architecture
The Department of Landscape Architecture, Graduate School of Design, Harvard University, is offering a scholarship for the next academic year of $600, equal to the tuition fee. Candidates must have received their Bachelor's degree, or equivalent, within the past four years; students who are candidates for the degree in June 1952 are also eligible. The curriculum embraces the design of areas of land for human use and enjoyment—broad scale physical planning, civic design, housing, parks and parkways. All enquiries should be received before 1 December and should be addressed to the Chairman, Department of Landscape Architecture, Robinson Hall, Harvard University, Cambridge 38, Massachusetts, U.S.A.

Commonwealth Fund Fellowships
The Commonwealth Fund of New York offers annually to graduates of British Universities a number of Fellowships tenable for one year in the graduate schools of certain Universities in the United States of America. These Fellowships are open to men and women.

Each Fellowship includes provision for tuition and living expenses with allowances for ocean passage and travel in the United States during vacations.

Graduates of British descent and over 23 but under 35 years of age who can produce evidence of proficiency in some recognized branch of University learning are eligible.

Applications for Fellowships tenable in 1952-53 will be received until 15 December 1951.

Forms of application and other information can be obtained from the Secretary of the Commonwealth Fund Fellowships, 35 Portman Square, London, W.1.

R.I.B.A. Golfing Society
The autumn meeting of the Society was held this year at Fulwell Golf Club, and the leading scores were as follows:

THE SELBY CUP
R. Duncan Scott [*F*], 86−19=67.
H. St. J. Harrison [*F*], 81−14=67.
R. G. Scott [*A*], 72−4=68.
R. Duncan Scott won the cup for the best score on the last nine holes.

In the afternoon foursome competition three pairs tied with one down; the competition was therefore decided on the last nine holes and was won by R. G. Scott and E. H. Firmin [*A*].

The Annual General Meeting of the Society was held in the evening, and the officers elected for the 1952 season are as follows:

President, Sir Giles Gilbert Scott, O.M., R.A. [*F*], Past-President, R.I.B.A.; *Captain*, A. H. Watkins [*L*]; *Committee*, H. St. J. Harrison [*F*], W. R. F. Fisher [*F*], F. T. Smith [*L*], A. E. Henson [*F*], F. Sutcliffe [*F*]; *Hon. Treasurer*, G. Felix Wilson [*L*]; *Secretary*, Eric H. Firmin [*A*].

It was unanimously agreed that the Society had had an enjoyable and successful season, and it is hoped that more members and students will join the Society. The Secretary will be glad to receive applications.

Members' Column

This column is reserved for notices of changes of address, partnership and partnerships vacant or wanted, practices for sale or wanted, office accommodation, and personal notices other than of posts wanted as salaried assistants for which the Institute's Employment Register is maintained.

APPOINTMENTS

Mr. Ronald J. Dyer [*A*] is taking up an appointment as an architect to the State Housing Commission of Western Australia, Corner of Hay and Plain Streets, Perth, Western Australia.

Mr. Alan H. Greenhalgh [*A*] has been appointed Architect to the Malton Rural District Council, Welham Road, Norton, Malton, and will be pleased to receive trade catalogues etc.

Mr. J. W. Lee [*A*] has been appointed Hospital Architect with the Transvaal Provincial Council, P.O. Box 857, Pretoria, Transvaal, South Africa, and will be pleased to receive trade catalogues etc.

The National Coal Board announce that a separate Architect's Department has been formed for the Durham Division and for the Northern (N and C) Division of the N.C.B. in place of the Department which formerly served both Divisions, and that Mr. R. Wood, F.R.I.C.S. [*A*] has been appointed Divisional Architect, Durham Division and Mr. J. C. Spooner, A.R.I.C.S. [*A*], Divisional Architect, Northern (N and C) Division. Both offices will be at the present address, 'Ashfield Tower', Gosforth, Newcastle-upon-Tyne, 3.

Mr. Harry Taylor [*A*] has taken up an appointment as Architect to the Church of Scotland, Home Board, 121 George Street, Edinburgh, 2, where he will be pleased to receive trade catalogues etc.

PRACTICES AND PARTNERSHIPS

Mr. John L. Gauldie, A.M.T.P.I. [*A*], has been taken into partnership by Corrigall, Crickmay and Partners [*F*/*A*], of Pietermaritzburg, Pretoria, Port Elizabeth and Salisbury, and will manage the Salisbury branch of the firm at 12 Park Street, Salisbury, Southern Rhodesia.

Mr. A. T. Marshall, A.M.T.P.I. [*A*], of Lanes Buildings, Princes Quay, Londonderry, has opened a branch office at Bank Chambers, 20 Market Street, Omagh, N. Ireland.

The Kingsbridge branch of **Messrs. A. S. Parker and Allen** [*F*/*A*/*A*] will be pleased to receive trade catalogues at 30a Fore Street, Kingsbridge, S. Devon.

Mr. R. Mountford Pigott, J.P. [*F*], announces that he has taken into partnership **Mr. Michael M. Pigott** [*A*] and **Mr. W. E. Barnes** [*A*]. The name of the firm is now **R. Mountford Pigott and Partners,** 3 Cromwell Place, S.W.7. (KENsington 1242/3).

Mr. R. K. Rutherford [*A*] is now in practice at 28 St. Peter's Square, London, W.6. (RIVerside 6621.)

Mr. Ronald Vallis, M.B.E. [*F*], announces that he has taken into partnership **Mr. Pelham Bird** [*A*], and the practice will continue at 6 North Parade, Frome, Somerset, under the style of **Vallis and Bird.** Mr. Bird will live at Park Cottage, Castle Cary, Somerset.

CHANGES OF ADDRESS

Mr. H. C. R. Frost [*L*] has transferred his offices from 4 Derngate to 44 Guildhall Road, Northampton, and will be pleased to receive trade catalogues etc. at his new address.

Mr. Kenneth C. Reid [*A*] has removed to 16 Beach Avenue, Leigh-on-Sea, Essex.

PRACTICES AND PARTNERSHIPS WANTED AND AVAILABLE

Associate, 35 (Scot.), desires partnership or position leading thereto, London or provinces. Wide practical experience of control of major contracts from initial to final stages. Highly efficient business administrator. Own car. Box 66, c/o Secretary, R.I.B.A.

Associate, 12 years in practice with work in hand, would like to contact practising architect or established firm in London with view to forming partnership. Office accommodation available if necessary. Box 85, c/o Secretary, R.I.B.A.

WANTED AND FOR SALE

Wanted Urgently. Copies of Final Examination papers pre-1948, now out of print. Box 80, c/o Secretary, R.I.B.A.

Wanted for School of Architecture library, copies of the R.I.B.A. Library Catalogue of Books and Index published 1937-38. Box 81, c/o Secretary, R.I.B.A.

Wanted. Second-hand surveying instruments, drawing boards, office tables, plan chests, and double elephant tables in good condition. Box 83, c/o Secretary, R.I.B.A.

D.E. battened and ebony-edged drawing board, and D.E. mahogany ebony-edged T-square, for disposal, good condition. Price £2 10*s*. Inspection and collection by appointment, Epsom. Box 86, c/o Secretary, R.I.B.A.

ACCOMMODATION

Member with London and Country practice requires small London office and would welcome sharing London office accommodation with another member. Small private office and share of general offices and some staff sharing arrangement would be welcomed. Box 82, c/o Secretary, R.I.B.A.

Spacious basement room to let in Marble Arch district. Top lighted and specially suited for drawing office; fitted with drawing bench. Would share services. Box 84, c/o Secretary, R.I.B.A.

Architects' Indemnity Insurance

The Architect, like other professional men, incurs certain responsibilities in the course of his work. Mistakes occur in even the most carefully conducted practice, and the Architect may find himself liable for substantial damages which he can ill afford to meet.

Professional Indemnity Insurance

is designed to give cover against all claims arising from acts of neglect, omission or error arising out of the conduct of the assured's profession, and arrangements have been made by which the maximum cover may be obtained at reasonable cost.

Particulars from:

The Secretary, A.B.S. Insurance Department, 66, Portland Place, London, W.1.
(Tel: LANgham 5721)